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VETERINARY MEDICINE

MARCH 1936

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According to the information that reaches me, most of you would be surprised to know to just what extent laymen are attempting to engage in the practice of veterinary medicine today.—*H. C. Rinehart,* State Veterinarian of Illinois.

* * * *

A new philosophy concerning public health is taking root in the minds of government officials so that within the next 50 years, public health work will be regarded as the first duty of government.—*Annual Conference of Illinois Health Officials.*

* * * *

The first year enrollment in veterinary medicine, in all our American colleges, in the fall of 1934, showed a 72 per cent increase over 1933. Limiting the enrollment in the better schools will, unless there is a limit placed on all schools, drive students to the weaker schools which were unable, adequately to prepare the limited number already seeking an education at their hands previous to 1932-34. From the standpoint of the profession, therefore, it is doubtful whether the present system of limiting the enrollment in Class "A" veterinary colleges is advantageous. At the present time, all the veterinary colleges have a capacity enrollment, and a number have admitted too many for their staff and equipment. The inevitable result will be educational work below decent standards and weakening of the professional qualities.—*C. H. Stange.*

Fur resources in the United States yield an annual income to trappers of $65,000,000—*S. N. L.,* 28:766.

* * * *

Approximately a million people in the United States have at least one bone broken in the course of a year.—*S. N. L.,* 28:766.

* * * *

The most complete library on the eye and its diseases in the world is said to be the 5,000 volumes at the Royal London Opthalmic Hospital.—*S. N. L.,* 28:750.

* * * *

In Massachusetts alone there are so many people suffering from arthritis that they would provide 22 patients to each physician in the state; yet it is estimated that 70,000 are receiving no treatment whatever.—*S. N. L.,* 28:766.

* * * *

When politicians or broken-down practitioners are employed as health officers, there is no hope of providing the people in reasonable measure with advantages and benefits of preventive medicine.—*Annual Conference of Illinois Health Officials.*

* * * *

The death rate from typhoid fever in the United States has fallen from 35.9 to 3.3 per 100,000 population, since the beginning of the century; that from diphtheria from 43.3 to 3.3. The rate of 56.2 per 100,000 population for tuberculosis in 1934 was the lowest ever recorded.

In veterinary medicine, we do not believe that important and scientific animal industry problems are settled in the show ring or by feeding and weighing animals.—*C. H. Stange.*

Although the results thus far obtained with crystal-violet vaccine give promise that it will be a valuable new means of preventing hog cholera, officials of the Bureau of Animal Industry emphasize that reliance should still be placed on anti-hog-cholera serum as now produced in federally licensed establishments and administered by qualified veterinarians. The newer product is still distinctly in an experimental stage.

ARTIFICIAL BREEDING MAKES EGGS MORE FERTILE

Simplified methods for artificial breeding of poultry, which in tests produced higher fertility than natural mating, have been developed by poultry scientists of the U. S. Department of Agriculture. A 97% fertility of eggs was obtained by these new methods as compared with an average of 85% in the natural matings at the National Agricultural Research Center, Beltsville, Md. The new methods make it possible to fertilize more than a hundred hens daily from the semen of a single rooster. It is easy to breed one to two hens a minute by the artificial method.

Semen is collected from male birds by stimulating ejaculatory nerves. In fertilizing a hen her abdomen is pressed gently until the oviduct protrudes. A syringe is then used to put the semen into the oviduct. Two or three drops of undiluted semen injected daily into a hen is sufficient for maximum egg fertility. Previously hens have been bred artificially by collecting the semen a male has deposited in the oviduct of one hen and transferring it to other hens.

With the new procedure, hens in battery plants can be inseminated without transferring them from their laying quarters. These new artificial methods also promise to be of great value in cross-breeding experiments, especially in cases where it is difficult to get fertile eggs. Tests by the Department show that natural mating almost never produces fertile eggs when either the female or the male is four times as heavy as its mate.

NEW HOG-CHOLERA VACCINE CAPS SCIENTIST'S CAREER

More than 30 years ago a Department of Agriculture scientist sought the cause of hog cholera, established the fact that it leaves surviving animals immune, and later developed anti-hog-cholera serum.

The scientist was Dr. M. Dorset. He died last July, but he left as a monument to his persistent genius a new vaccine—crystal-violet—which the Bureau of Animal Industry has just announced, and which, it believes, may be the most satisfactory product yet developed to fight hog cholera. A patent on crystal-violet vaccine—dedicated to the public welfare—has been applied for.

Although crystal-violet vaccine must be tested further, indications are it will be not only as effective, but cheaper and safer than the combination serum-and-virus treatment now used.

Dr. Dorset studied the diseases of many farm animals and developed many products for their control. But he was never fully content with his cholera serum. Year after year he and his staff worked for improvements in cholera prevention.

In recent years, they sought, particularly, chemicals to mix with the deadly virus which would destroy the infective element and at the same time preserve the protective element that creates immunity to hog cholera. They experimented with various substances—phenol, glycerin, formalin, and other chemicals.

One of the last was crystal-violet, a water-soluble dye. Doctor Dorset did not live to test, to his full satisfaction, vaccine made with this product. But his coworkers now announce that, in their experiments with 200 pigs, crystal-violet vaccine has given about 99% protection against hog cholera.

REPORT OF THE TWELFTH INTERNATIONAL VETERINARY CONGRESS

In the January issue (page 39) it was announced that the publication of the proceedings, including all papers and discussions, of the International Veterinary Congress held in New York City, August, 1934, was completed and copies of the report were ready for distribution. Although some description of the contents of the report was given it is obvious, many veterinarians do not yet appreciate the importance of this congress, or the value of the report to them. Possibly this is because little mention of the papers presented at the congress has appeared in American veterinary periodicals, the obvious reason for this is that some 3,000 American veterinarians being members of the congress, would receive the complete report and thus publication of the papers in veterinary journals, would be a duplication.

Veterinary journals the world over, except in North America, have given a great deal of attention to the proceedings of this congress and most of them have published abstracts of the papers presented and in a number of instances, papers have been published in full. Even yet, after 18 months, mention of the congress and reference to the material presented there appears frequently in many veterinary publications. For example, the most recent issue of *Vlaamsch Diergeneeskundig Tijdschrift,* Antwerp (January 1936), contains two pages of abstracts of papers presented at the congress; the most recent issue of *Revista de Higiene y Sanidad Pecuarias,* Madrid (November 1935) contains 37 pages of abstracts from the congress; and the *Revista de Medicina Veterinaria,* Buenos Aires (November 1935) contains 16 pages.

References to material presented at the congress will appear in veterinary literature for years to come. There will be many advantages in having the complete report so that the original may be referred to if desired in such instances. In another section will be found an announcement by the secretary of the congress, offering to supply the three volumes constituting the report for a sum much less than the cost of publication. The prudent veterinarian will obtain his copy before the limited supply available for public distribution is exhausted.

* * * *

Short courses and graduate courses do not solve our problems, as the man, who has the inclination, keeps up to date by reading the current literature; while the man who is not inclined to study cannot be reached through short courses or conferences, because those who need assistance most are the ones who will not attend graduate or short courses.—*C. H. Stange.*

* * * *

MEAT INSPECTION CHIEF DIES

Dr. Adolph J. Pistor, Chief of the Meat Inspection Division of the Bureau of Animal Industry, U. S. Department of Agriculture, died January 25 of pulmonary embolism following an operation. He had been ill only a few weeks. Doctor Pistor was born July 7, 1876 in Newark, N. J., was graduated from the American Veterinary College in 1898 and entered the service of the Bureau of Animal Industry at Chicago in the same year. In 1900 he was assigned to sheep inspection work in Nebraska, Wyoming, Idaho, and Utah and pioneered in the organization of the veterinary campaign which resulted in eradicating sheep scabies from the western ranges.

With the passage of the Federal meat-inspection law of 1906, Doctor Pistor was called upon to take an active part in organizing that service, which is now conducted in about 250 cities. Later he was transferred to administrative duties in Washington, D. C., where he subsequently became assistant chief and finally, on January 1, 1935, chief of the meat inspection service.

In recent years he was keenly interested in the welfare of employes in the meat-inspection service, which employs about 2,500 veterinary and other inspectors. He participated in the organization of the Agricultural Department's Beneficial and Relief Association, of which he was a director.

"Filthy, Putrid, Moldy, Rancid and Decomposed"

THE foregoing are not idle words. They are deliberate findings, promulgated with the dignity and by the authority of august United States District Courts in a dozen states. Informed readers will surmise, correctly, that they refer to ordinary market cream. However, the description is not complete. In seizing and destroying consignments of cream from some 1,200 producers because its shipment, interstate, violated the Federal Food and Drug Act, the inspectors also found cream that was "moldy, rancid, filthy, putrid and decomposed"; other shipments were only "moldy, putrid and decomposed"; other lots were "filthy, putrid or decomposed"; others, "putrid, decomposed and rancid," and to this delectable delicacy was often added yeastiness. An occasional specimen was, by comparison, a quite wholesome food product, being only "moldy and decomposed," but specimens of such quality were rare, perhaps one in fifty.

LIMITED funds having been allotted by the Food and Drug Administration for the enforcement of the law prohibting interstate commerce in food adulterated, spoiled or unfit for human consumption as it applies to cream; a team of inspectors were assigned to this work during September, October and November, 1934. The inspectors first went to Cincinnati and in five days made 13 seizures, totaling more than 3,500 gallons of cream shipped by several hundred producers in Kentucky, Indiana and West Virginia, to the Tri-State, Merchants and Beatrice creameries. In all instances, the consignees readily admitted that the shipments "consisted in whole or in part of a filthy, putrid or decomposed animal substance, unfit for human consumption," and consented to the article being destroyed.

In an equal period, the inspectors made 31 seizures of 2,333 gallons in Sioux City, Iowa, of similar filthy, putrid, decomposed, moldy, yeasty cream, unfit for human consumption. The shippers in this instance were producers mainly in South Dakota and Nebraska and the creameries concerned, which readily admitted allegations, were: Kegley-Berger, Sunlight, Blue Valley, Fairmont and Bordens.

Other places investigated by the inspectors included Louisville, Ky., for Tennessee producers; Fargo, N. Dak., for Minnesota and Montana producers; Minot, Mandon, Dickenson and Oaks, N. Dak.; Gregory, Winner, Watertown, Aberdeen and Sioux Falls, S. Dak.; Denver, Colorado Springs, Pueblo and Trinidad, Colo.; Portales and Clovis, N. Mex.; Salt Lake City, Utah; Marysville, Parsons, Kansas City and Topeka, Kans.; Springfield, Mo.; Omaha, Holdredge, Alma, Falls City, Superior and Fairbury, Nebr.; Baltimore, Md.; Buffalo, N. Y.; Columbus, O., etc.

THROUGHOUT the whole list, from Baltimore to Salt Lake City and from North Dakota to New Mexico, comprising some 40 collecting points, 50 or more creameries, more than 1,200 producers and thousands upon thousands of gallons of cream, the adjectives "filthy, putrid, decomposed, moldy, yeasty, rancid and unfit" applied. The Cincinnati incident was discussed in these pages recently (V. M., 30:9, September, 1935, p. 379). It was pointed out at that time that the sanitary regulations governing the production and marketing of cream are, in most states, under the control of the state department of agriculture and that there is a cooperative effort on between producers' associations and the state officials, not to improve the quality of the cream and consequently the butter made from it, but to force its citizens and the citizens of other states to eat butter, regardless of its unsavory origin, by higher and ever higher taxes on

oleomargarine and other butter substitutes. It does not work well, as accumulating dairy surpluses of recent years show. The way to dispose of the surplus of our dairy industry is to make the product fit to eat, and consumers will dispose of it to their own satisfaction and profit to the industry, as experience has shown times without number in the matter of fluid milk.

SOME allowance can be made for the millions of cream producers forced to take a miserably inadequate price and offered no premium for the finest product over the price given for an unspeakable product; but what can be said for short-sighted, agricultural-minded, regulatory officials and agricultural leaders? Absolving them, as we evidently may, from any qualms of conscience as to the welfare, health or life of their customers, we must still deplore their lack of that business acumen that recognizes the cultivation and development of a market to be as necessary as the production of supplies for that market. As we have pointed out on previous occasions, agriculture is badly served by its leaders, official and otherwise.

And what should be said of the morals of the butter and cheese industry when half-a-hundred creameries including most of the largest in the industry, without protest or controversy, unblushingly admit the charge of using moldy, rancid, putrid, decomposed, filthy cream unfit for human consumption, from which to manufacture their products? The Federal inspectors were powerless to interfere with intra-state consignments, but there is not the slightest reason to assume the condition of such cream was less revolting than that from across some state line, or that conditions differ at the thousands of uninspected collecting points where cream is purchased.

A little more liberal appropriations for the Food and Drug Administration would perform a highly important service for the dairy industry, to say nothing of the protection afforded consumers of dairy products.

VITAMIN C, THE ANTITOXIC VITAMIN

Vitamin C was originally regarded as the anti-scorbutic vitamin and was used chiefly as a preventive of scurvy, a rare condition in modern society, but recent research has given it a wider indication. Its value has been demonstrated in a number of what may be termed "prescorbutic" conditions, anemias, dystrophies, faulty metabolism and growth, disturbed mineral metabolism, nutritional disturbances, allergic conditions, etc. Clinically, it has been observed that vitamin C detoxifies patients suffering from diphtheria and pneumonia. The possibility exists that it may be essential in the body for all immunologic defense, and indicated wherever diminished resistance is shown to recurring infections, particularly infections of the upper respiratory tract.

It has long been considered that dogs do not require to be fed vitamin C, the opinion being held either that these animals do not require this vitamin, or that they are able to elaborate it within their bodies as required. Recently clinical observation has indicated that while the foregoing holds true for young dogs, it may not apply to old dogs. Some veterinarians have had considerable success in treating the varied infirmities of senility in the dog by the administration of vitamin C. Apparently the use of this vitamin alone has restored such dogs to comparative health and extended their lease on life for two or three years, very much to the gratification of their owners.

Recently vitamin C has been produced in pure form synthetically for the use of physicians by the Hoffmann-La Roche Company, Nutley, N. J.

* * * *

Anatomy is not only valuable for the background of facts it gives the student, but also for the skill he derives from dissection. Dexterity with instruments and the ability to make careful, critical observations, both so necessary in dissection, form an asset of inestimable value to later training and practice.—*H. L. Foust.*

Serum-Virus Marketing Agreement

THE proposed marketing agreement was prepared and presented for the serum-virus industry by a committee of twelve, selected at a meeting in Kansas City on September 6th, 1935. The committee consists of all ten members of the old code authority and Mr. Thomas A. Edwards representing wholesalers who merchandise their products principally through veterinarians, and Mr. A. H. Adams representing wholesalers who merchandise their products principally through sources other than veterinarians.

The hearing, held at Omaha Jan. 13 and 14, 1936 was presided over by Judge G. J. Gifford, who was assisted by Major R. H. Barkalow of the A.A.A. legal staff; Dr. D. I. Skidmore, Chief of the Serum-Virus Division, Bureau of Animal Industry; and Mr. C. A. Burmeister, senior economist of the bureau of agricultural economics.

The factual evidence in support of the provisions of the marketing agreement had been prepared in advance by the committee in the form of briefs. Such briefs were read into the record by various members of the industry.

The need for a marketing agreement to protect the interests of the consumers, as well as the manufacturers of serum, was thoroughly discussed. The justification for legalized industrial self-management of the industry was explained by the fact that during the days of codification the morale of the industry was improved and the protection of the consumer increased without any advance in prices, although that period was marked by advances in prices of most other products. The chief benefit to the consumer during days of codification, and the chief benefit which presumably will accrue under a marketing agreement, is the requirement necessitating all manufacturers to carry increased reserve stocks for immediate use in case of epizootics. This can be accomplished at the same time that the industry benefits from the posting of prices and the increasing confidence which such a procedure instills in its members.

It is interesting to note that all other marketing agreements are for the producers of agricultural commodities. The serum industry is the only manufacturing industry which has been authorized by law to have a marketing agreement.

The transcript of the public hearing, consisting of 272 pages, has been prepared. A limited number of copies are available and can be had at a cost of $27.30 by applying to the Chief of the Bureau of Animal Industry, Washington, D. C.

No opponents to the marketing agreement appeared at the public hearing. All interested parties, whether proponents or opponents, were given ten days during which time they might file briefs. This period expired January 24, 1936.

The proposed marketing agreement, the transcript, including amendments, offered at the public hearing, and any supplemental briefs which were filed before January 24th, are now under consideration by the Secretary of Agriculture. It is expected that within the near future that official will make known the kind of a marketing agreement which is acceptable to him. If such an agreement proves satisfactory to and is signed by "all of the handlers of 75% of the serum shipped interstate," the agreement becomes effective and the Secretary will then issue "orders" identical to the marketing agreement. Said "orders" will automatically place all producers and wholesalers doing an interstate business on the same terms whether or not they are parties to the marketing agreement.

The proposed marketing agreement is in most respects similar to the invalidated code. It calls for the posting of prices, terms, and discounts, a prohibition against selling at any prices, terms, or discounts except those posted, and the elimination of certain unfair trade practices. The agreement calls for a control committee of twelve members and twelve alternates, all of whom are to be appointed by the Secretary of Agriculture.

REPORTING OF CONTAGIOUS DISEASES

We need a system of compulsory reporting on the prevalence of contagious diseases of animals. If such vital statistics were available, the problem of contagious disease control could be made far more effective and more intelligent control programs could be outlined. In Europe, such reports are required and this is undoubtedly one of the reasons why, in spite of their many difficulties, they have been generally more successful in controlling contagious diseases of animals in view of their greater difficulties. It is easy to visualize the benefit to be derived from an outline map of the United States each year showing the outbreaks of the various contagious diseases of animals. The value of such records would increase with their accumulation over a period of years.—*C. H. Stange.*

Veterinary surgery deals with the individual animal in accident and disease. Ability to do surgery skillfully and efficiently is of paramount importance to the practitioner of veterinary medicine as a large part of his daily routine involves surgery of one kind or another.—*Geo. R. Fowler.*

Men who had sense enough to keep on using horses and mules during the past ten years and who kept and bred enough mares to raise colts for replacement have had a good year in 1935 and will have a still better season in 1936. Prices have moved up quietly but steadily for almost three years,—1933, '34 and '35,—and are now high enough. Good grade mares weighing around 3,000 lbs. per pair, if sound, well-shaped, of good age and quality, are bringing from $400 to $500 per pair in the country. This is enough to leave a fair profit to the man who raised them, and worked them during their 3, 4, and 5 year old seasons. He has made a fair profit; and if prices go much higher, a great many farmers who would like to buy horses or mules are going to try some alleged substitutes, for part, or all, of their work.—*Wayne Dinsmore.*

Disease has been observed in man and animals for centuries but an understanding of disease is of comparatively recent origin. Obviously progress in the relief and control of disease could make little headway when the fundamental mechanism was unknown. Thus human and veterinary medicine was for long dominated by superficial observation, superstition and outright fantasy. —*E. A. Benbrook.*

In the field of pharmacology, the needs of the veterinary students, in particular, with respect to its various subdivisions of pharmacognosy, pharmacy, pharmacodynamics, and toxicology must be carefully considered, and proper methods and facilities developed for teaching these subjects if the necessary background is to be secured for the rational application of therapy in medical practice.—*H. D. Bergman.*

LIMIT ON NUMBER OF VETERINARY STUDENTS IN KANSAS

The State Board of Regents has authorized a limitation, effective September 1, 1936, of not to exceed 200 in the four professional years in the Veterinary Division of the Kansas State College at Manhattan. The president of the college and the council of deans have approved the following regulations to effectuate the new policy:

1. Prospective matriculants may be admitted to the preveterinary year by presenting the proper high school or equivalent credentials.

2. The enrollment in the four professional years is limited. In the selection of students for the professional years first preference is given to residents of Kansas and second preference to residents of states having no standard veterinary colleges.

3. Selection of applicants for admission or promotion to any of the professional years is made from among those ranking highest in scholarship, where other qualifications, ascertained by either personal interviews or documentary evidence or by both, are satisfactory. Before being permitted to enroll, applicants must be formally accepted by the Committee on Veterinary Selection, of which the Dean of the Division of Veterinary Medicine is chairman. In general, no applicants will be accepted after August 15.

Prospective students should apply to the dean of the division for a blank form entitled "Application for Selection."

Cost of Disease to the Poultry Industry

No branch of animal industry has been so reluctant to avail itself of skilled veterinary service as has the poultry industry. Its attitude toward the veterinary profession is perhaps best described as antagonistic. Within a score of years, veterinary research has furnished the means for a fairly effective control of the more important infectious diseases of poultry, pox, pullorum disease, infectious laryngotracheitis, typhoid and coccidiosis. In spite of this, mortality rates among commercial and farm flocks have increased four fold in the same period. In egg laying contests, prior to 1912, the average mortality was 6.3%; during the past five years, over the whole country, it has ranged from 20% to 40%, in most instances above 30%. Among commercial flocks, the average loss of hens during the first laying season was only 7% in 1916; at present it ranges from 31% in California to 55% in Ohio. To this must be added, of course, loss during the embryonic period and of chicks from the time they are hatched until they go into the laying houses.

Disease is the outstanding, limiting factor in poultry production at the present time, and its importance is increasing steadily. The extent of disease encountered is the principal factor in determining the profit or loss that may accrue in a given poultry venture. The system of making every poultryman his own chicken doctor, has signally failed. In this, as in other fields of disease control, the bulletin doctors have just messed things up.

Two excuses commonly given for the failure of the poultry industry to avail itself of skilled veterinary service: (1) The low value of the individual bird, and (2) the lack of veterinarians trained in poultry pathology. As to the former, it may be pointed out that an annual mortality exceeding more than 50% and costing more than a hundred million dollars, justifies no little expenditure for its prevention and further, that this same industry furnishes the largest and most lucrative field extant for quacks and quack remedies.

The implied charge, that most veterinarians lack the qualifications to handle poultry ailments successfully, likewise falls before analysis. In the first place, it lacks proof because the plan of skilled veterinary service for the control of disease has not been tried in the poultry industry. Further, pathology is pathology, whether found in man, horse or bird. Veterinary students are instructed in special poultry pathology as in the special pathology of other species, and veterinary meetings, veterinary short courses and particularly veterinary periodicals give much attention to the subject.

It is not complimentary to the intelligence of the poultryman that he prefers the blandishment of the medicine peddler, the pecuniary optimism of the commercial quack and the free service of the county agent to the service of those trained to help him in handling his most difficult problem. It is not a credit to the poultry departments of our agricultural colleges and other leaders in the industry that in teaching the poultryman how to double the production of his plant, they have led him into methods that have quadrupled the loss of his productive units. It savors of giving him a stone (a business tombstone) when he asked for bread.

* * * *

U. S. IMPORTS PARASITE HORDES TO PROTECT TREES

After a 5-year search for natural enemies that control forest and shade trees insect pests in central Europe, Wendell F. Sellers, insect explorer of the Department of Agriculture, has returned to the United States.

He collected and sent to this country many promising parasites. In 1 year alone approximately 324,000 of these parasitic enemies of 5 different pests were liberated in New England, New York, California, and the State of Washington. Time alone will tell whether the newly introduced parasites will give the same control in North America as in Europe.

Diet and Disease In Young Calves

IN the main, there are two conditions that kill young calves[1], one of dietetic origin, the other of infectious origin. Usually they are somewhat mixed up or complications of one another. We can bring an infected calf into a pen containing calves that have been properly fed, and the disease will spread. On the other hand, by an improper diet we can produce the disease without bringing in an infected animal. It is certain, we cannot do very much with either ailment without remedying the diet.

DIARRHEA of the new-born calf is a septicemia, said to be due to a bacillus of the colon type. Calves 24 to 72 hours of age suddenly develop a diarrhea. They are depressed and have a temperature. This condition is present in the fall, winter and spring and occasions heavy losses. If the disease continues for a time, atypical cases will appear, cases in which there is no diarrhea, but in which the symptoms of pneumonia are the first, and perhaps the only ones to be seen. Cases may occur in which death is sudden and almost no lesions can be found.

The disease is a controllable one; one of the chief measures of control being a proper diet. The chief difficulty encountered is to induce the owner to follow directions. Usually he will not do this until his loss has been considerable.

The calf should be born in a clean, box stall. Its navel should be disinfected by dipping it into a bottle of tincture of iodine held against the belly for five minutes. It should be left with the dam for 12 hours; then removed. It should never contact mature animals again as long as it is a calf. When it is taken from the cow, it should be muzzled and put in a pen and starved for 24 hours. Following this, it should receive colostrum milk for five days.

[1] Notes from a discussion at a recent veterinary conference.

THE end of the first 24 hours is a critical period. The calf is now hungry. His digestive system has not yet learned to function. He will blow up on a full feed. At this time, give him just one pint of colostrum milk and one pint of water. The next day, start his regular feeding. This day he should get his third day's ration.

The ration is figured by allowing the calf a quantity of milk equal to 8% of its weight for the third day, 9% for the fourth day, 10% for the fifth day and so on, until at the end of ten days, it is getting 15% of its weight. Keep the allowance of milk at this point from then on and every day give with the milk an equal quantity of water, or better, lime water.

ANOTHER rule to follow, where the dairyman will not take the trouble to weigh the calf daily and figure from the percentage of its weight how much milk to give, is to give on the first day that it is fed (that is for the third day's ration the calf having remained with the cow the first day and starved the second) 1⅓ pints of milk and 1⅓ pints of lime water; and to add to this one-half pint of milk daily. When the daily ration of milk equals 15% of the body weight, the percentage increase stops but the amount of the feed increases, of course, as the weight of the calf increases. The daily allowance of milk and water should be divided into three portions and be fed morning, noon and night. The muzzle should be kept on the calf until it is a month old. If this procedure is followed routinely, there will be no losses from white scours.

FEW calves that we see are entirely normal. A normal calf is active and sleek and requires exercise. Calves that are put into the stable in the fall, usually look bad by midwinter. The trouble in most cases is due to lack of exercise.

A Study of 1000 Fecal Examination Reports

By LEON F. WHITNEY,
New Haven, Connecticut

SOMETHING over two years ago, a commercial dog food manufacturing company decided that it could be of greater service to its customers by affording them the opportunity to have fecal examinations for their dogs made free of charge. Many times, they found, customers seemed dissatisfied with their feed when the proper reason for the dissatisfaction should have been ascribed to intestinal parasites. Many customers took advantage of this opportunity and the author was engaged to do the technical work.

It is believed that a study of 1,000 of these reports, taken without selection, except for the geographic source, will throw some light on the comparative prevalence of the commoner intestinal parasites of dogs in eastern United States. The samples, which represent a fairly uniform distribution among the central, eastern and northeastern states, were collected over a period of a year and two months.

The best possible equipment was employed, including all necessary apparatus for the most efficient technique. The average time consumed in making the examinations in quantity was approximately fifteen minutes for each examination. Care was taken to make the diagnosis as thorough and as accurate as possible. This service was discontinued by the company after two years because it was felt that, being free, it took a certain number of clients away from veterinarians. It is doubtful, however, that such was the net result, since hundreds of persons were referred to their veterinarians for assistance in eradicating parasites and cecectomies were suggested in cases where whipworm infection was very severe.

This study covers reports (1,000) which were sent to those submitting samples of feces. The reports cover examinations made on the feces of one to five dogs. The total number of dogs represented is 1492. The total number of dogs which were negative for parasites was 610 or approximately 41%. Many dogs harbored several forms, so that the total number of infections was 1899, an average of 1.27 per animal or 2.15 per infected dog. The table shows the results of the study of dogs only. Examinations were also made of foxes, mink and raccoon, but none of these are included.

Total number reports returned (1 to 5 dogs covered by each report)	1000
Number dogs negative	610
Number dogs with roundworm infection (*Toxascaris leonina* and *Toxocara canis*)	312
Number dogs with hookworm infection (*Ancylostoma caninum* and *Uncinaria stenocephala*)	268
Number dogs with *Strongyloides stercoralis* infection	13
Number dogs with whipworm (*Trichuris vulpis*) infection	350
Number dogs with pinworm (*Oxyuris*) infection	14
Number dogs with tapeworm (several species) infection	268
Number dogs with coccidia infection	64
Total infections	1899

It is rather surprising that the whipworm leads in infections. This is all the more remarkable when it is realized that many of the dogs examined were puppies which so often are infected with roundworms and so seldom exhibit whipworms at an early age. It is also to be remarked that 14 cases of pinworm infection have come to light, whereas this worm has seldom been reported in dogs, and neither Mönnig nor Cameron lists it as a parasite of that animal. The cases of oxyuris were of somewhat scattered origin.

Probably tapeworm infection is far more prevalent than this study indicates, because in many cases, persons sending samples of feces, told of having seen tapeworm segments on the stool at various times, but in the sample sent, no tapeworm ova were found. This experience, and other tests

conducted in the experimental kennel referred to later, have convinced the writer that diagnosis of tapeworm infestation by fecal examination is not completely reliable, except where the findings are positive.

Concrete Vs. Dirt Runs

An interesting observation, not revealed in the table, is the comparative value of concrete runs and dirt or sand runs in the control of intestinal parasites in the dog. In many cases where examination of specimens from a number of dogs belonging to the same owner revealed uniformly severe infection, the owner was written to learn what sort of runs his kennel had. In a number of instances, it was found that dogs with most severe infections were maintained on concrete runs. A large number of kennels have installed concrete in an effort to eliminate parasitic infection, but in not a few cases, the concrete has made conditions worse. Persons who scrupulously and methodically removed stools and who burned the surface of their concrete runs frequently, or washed them off daily with a hose, had very little trouble, but those who merely removed the feces with a hoe, apparently had not helped themselves by installing concrete runs, and in some instances appear to have made matters worse.

It must not be inferred that the results of this study indicate the severity of the worm infection among the dogs of the eastern states. The samples examined were, more often than not, from dogs which were thought to be "ailing," "off their feed," "suspected of habroring parasites," etc.

"See Your Veterinarian Periodically"

The results of the periodic fecal examinations made in an experimental kennel, of which the author has charge, are not included in the foregoing. The approximately 150 dogs in this kennel are examined each three months, and despite great care in kennel management, reinfection is found frequently.

The author would like to suggest to the veterinarians that they institute a campaign for educating the dog owning public in the value of "periodic fecal examinations" for dogs. If owners of dogs realized the value of these examinations and the harm that parasites often cause, many an owner would happily take his dog for his periodic fecal examination.

* * * *

PELT CROP ON SILVER FOX FARMS 28 TIMES LARGER THAN IN 1923

New uses for silver fox fur and a steady consumer demand have helped the fur trade to keep pace with the young and rapidly growing fox farming industry in the United States. In less than 15 years the annual crop has increased from 6,000 pelts in 1923 to more than 170,000 pelts in 1934.

Since 1923 pelt production has increased steadily. The number of pelts produced and their total sales value were both about ten times as great in 1928 as they were in 1923. Sixty thousand pelts produced in 1928 brought fox farmers $7,719,600 as compared with the $579,000 they received for 6,000 pelts in 1923. Sales values dropped in the three years following 1928, but from a low point of $3,472,000 in 1931 they advanced to $7,000,000 in 1934. During that period the annual crop increased from 110,000 to 170,000 pelts.

Pelts produced in 1928 sold at an average of $128 each, the highest average price on record for the last 12 years. In 1931 the market value of pelts dropped to an average price of $31.57 each, but lately it has ranged from $40 to $45.

About half of the pelts produced in the United States comes from Wisconsin, Minnesota, and Michigan. In general, silver foxes are being raised for fur in the northern tier of states from New England westward to Oregon, and in the cooler parts of California, Colorado, Kansas, Iowa, Missouri, Illinois, Indiana, Ohio, Pennsylvania, New Jersey, and Massachusetts. The growth of the industry in Canada has been similar to that in the United States, but on a somewhat smaller scale.

When Veterinarians May Enforce or Rescind Contracts

By LEO T. PARKER,
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ALMOST all legal controversies involving veterinarians directly or indirectly relate to contract law. Moreover, approximately 90% of all litigations, involving contracts, arise from misunderstanding of purely elementary and simple principles of the law. Sometimes these litigations result from agreements to perform professional services. In other instances disagreements arise from ordinary contracts for purchase of real estate, supplies, merchandise, and the like.

In discussing contracts it is convenient to refer to the transactions as sales and the contracting parties as seller and buyer, or purchaser. The same provisions of law, however, apply to contracts for all manner of services, including of course veterinary service, all of which is rendered on contract, written, oral or implied. Thus the law of contract governs almost every act of a veterinarian as such. In rendering service to his clients and providing them with supplies, he is a seller; in procuring his own supplies and equipment, his home, household necessities, etc., he is the purchaser. All these matters are transacted as has been stated, under contract, written, oral or implied, and all are governed by the law of contract. In the following discussion, a sale contract may refer equally to tangible property or services.

What Is Valid Contract?

The courts have consistently held that a valid and legal contract is an agreement between two or more parties by which each party is expressly or impliedly obligated to do something, not prohibited by law, within a specified time. In an expressed contract the terms of the agreement are stated in so many words, but an implied contract is one where the court presumes or implies that one of the contracting parties is obligated to perform a service for the other.

It is interesting to know that the higher courts have established the rule that a sale contract is valid and enforceable if these facts are present: (1) one of the contracting parties submitted an offer which the other party unconditionally accepted; (2) both parties have certain obligations to perform; (3) the object of the contract is legal; (4) both parties are sane and of legal age; (5) the quantity and quality of the subject of the sale is clearly stated; (6) the contract does not violate a state or city law; (7) neither of the parties practiced fraud or deceit.

What Is Fraud?

The law is well settled that a purchaser may rescind any contract, as a contract for the purchase of real property, supplies, merchandise, services, or other things, if the seller or his representative practiced fraud or other dishonest methods to induce making the contract. The laws of contracts are the same whether for sale of property, services, merchandise, or supplies.

In fact the most common legal reason a purchaser may, without liability, cancel a sale or other kind of contract, arises from fraud on the part of the seller or his authorized representative. Therefore, it is important to know that in order to rescind a contract on the ground of fraud on the part of the seller, the following facts must be proved: (1) there must be proof of acts, language, or silence on the part of the seller amounting to a false representation or a concealment of material facts; (2) these facts must be known to the seller *at the time* the contract is completed; (3) the truth concerning these facts must be unknown to the other party at the time he made the contract; (4) the acts of the seller must be done with the intention to influence the purchaser; (5) the promises

or fraud of the seller must be relied upon.

It is well established that where a contracting party practices deceit the injured party has *no* legal recourse if he fails to prove that he believed the deceitful or fraudulent statements, and that they were made *before* the contract was made.

Another important point of the law is that a failure of the seller to explain facts regarding the quality of the real property, supplies or other merchandise, or services when it is his duty to disclose them, constitutes fraud. In other words, where he has reason to believe that his silence misleads the purchaser, this is an element of fraud which entitles the latter to rescind the contract. For illustration, in a recent case (101 Iowa 457), the court held that silence of a seller in regard to the defects it is his duty to disclose is fraudulent.

Liability for Breach

It is well that readers realize that when a seller, or his representative, practices fraud, the purchaser is entitled to recover damages, as well as rescind the contract. This is true because inducing the making of a contract is equivalent to a breach of the contract.

For this reason it is necessary to know that the courts consistently hold that the purchaser always is privileged to cancel a contract where (1) the seller fails to make delivery on the date specified in the contract; or (2) fails to supply the agreed quantity or quality of merchandise; or (3) fails to make shipment by a common carrier specified by the buyer; or (4) where the seller refuses to accept the kind of payment agreed upon.

Various courts have held that a signed order given to an ordinary salesman or other representative is *not* an enforceable contract until the salesman's employer sends his acceptance of the order. This is true law because a salesman's implied authority is merely to solicit orders and submit them to his employer for acceptance. For this reason, *either the purchaser or the seller may cancel an order given to a salesman,* if such cancellation is made at any time previous to acceptance of the order by the salesman's employer.

In other words, if the salesman's employer is not satisfied with the offer submitted in an order, duly signed by both the veterinarian and the salesman, he may reject the proposal. And since the veterinarian has the same privilege, he may send his cancellation at any time before the salesman's employer acknowledges and accepts the order.

For illustration, in a leading case a veterinarian ordered a quantity of supplies from a salesman. The salesman required a money deposit with the order. The veterinarian gave the salesman a cash deposit of $40 and both the salesman and the veterinarian signed the contract of sale, which stated that *no* cancellation would be accepted.

The salesman sent the order immediately to his employer who failed to acknowledge it. Several days after the order was signed the veterinarian wrote to the salesman's employer cancelling the order, and requesting that the $40 he had paid to the salesman be returned. The seller refused to cancel the order or return the deposit.

The veterinarian filed suit and the court promptly held him entitled to cancel the order and receive the cash deposit back from the seller.

Also, in another leading case (41 So. 675), it was shown that a veterinarian gave an order to a salesman in September. The seller failed to acknowledge the order and two months later the veterinarian cancelled the order. The seller filed suit for damages on the grounds that his failure to send a notification for two months that the goods would *not* be shipped indicated that he intended to accept the order and that he was preparing the merchandise for shipment. However, the Court held the veterinarian entitled to cancel the order saying:

"There is no time, from the time such an order is received until it is accepted, that the person giving the order cannot countermand it. It is plain that when silence on the part of the plaintiff (seller),

after receiving the order, without any act tending to show an acceptance, would not cut off the right of defendant (purchaser) to cancel the order."

Also, if a salesman deceives or defrauds a purchaser or makes false statements by which the purchaser is induced to make a contract of sale, the purchaser may rescind the contract when he discovers the fraud. This is true because the salesman performed a fraudulent act while acting within the scope of his authority to sell goods. (279 S. W. 530.)

Therefore, although a written contract clearly specifies that verbal promises of the salesman are not binding, yet the purchaser may cancel the contract, where it is shown that the salesman made false statements before the contract was signed.

Salesman Deceives Employer

Sometimes a salesman deceives his employer which results in the purchaser being entitled to rescind a contract. In fact various courts have held that a salesman is bound to impart complete information to his employer regarding a sale transaction. Therefore, a valid contract is not made if the salesman does not transmit the complete agreement to his employer for acceptance.

For example, in Floor v. Mitchell, 41 Pac. (2d) 282, it was disclosed that a salesman entered into a sale agreement. In addition to the regular contract, and without knowledge or authority of his employer, the salesman and the purchaser made a separate written agreement in which the salesman guaranteed the merchandise to satisfy the purchaser.

The regular contract was sent by the salesman to his employer for acceptance. However, he did not send the written guarantee to his employer.

The purchaser was not satisfied with the goods, and refused to make the agreed payments and cancelled the contract. The salesman's employer filed suit to enforce the contract but the court held that the purchaser was entitled to cancel the contract, and said:

"The purchaser made an offer through an agent which consisted of two contemporaneously drawn instruments. The plaintiff's agent failed to transmit one of the instruments. . . . Since the offer of the defendants consisted of the two instruments failure to accept the whole of the offer was no acceptance at all."

Classification of Guarantees

Guarantees are legally classified as "expressed" and "implied." An expressed guarantee arises where the buyer and seller *orally or in writing* agree to the *exact* terms of the guarantee. An implied guarantee exists where the seller does not actually make a warranty, but the circumstances are such that a Court implies a guarantee. This implied guarantee is the one usually obtaining in the matter of veterinary services. Its scope has already been discussed. V. M. Vol. 30, No. 2 and No. 4.

In other words, frequently the character of a contract is such that the purchaser is compelled to rely upon the honesty of the seller. Under these circumstances the courts imply a warranty on the part of the seller that the thing he sells is reasonably worth the price paid.

This law, however, does *not* prevail where the seller gives an expressed guarantee, or where he clearly states that no implied guarantee exists.

For example, in Manglesdorf Co. v. Pauls Co., 273 Pac. 252, a seller incorporated in the contract the following clause:

"We (the seller) give no warranty, express or implied."

Later the purchaser discovered that the supplies were not of the quality which he had ordered and he filed suit against the seller for damages. It is interesting to observe that the lower court held the latter liable, but the higher court reversed this verdict explaining that the above clause resulted in the implied warranty rule being inapplicable.

Of course, it is well established that a seller who breaches either an expressed or

implied guarantee is liable in damages. Moreover, various courts have held that, if a seller breaches a warranty, the purchaser (1) may upon discovery of the breach rescind the contract and sue and recover the money paid, in which case he must restore the merchandise or property he has received by virtue of the contract; (2) or, he may sue to cancel the contract, and in such case it is sufficient for him to offer to restore everything of value which he has received under the contract; or (3) he may affirm the contract, retain the goods and sue to recover the damages sustained by reason of his reliance upon the seller's representations.

Personal Liability

Irrespective whether an employer is responsible for the acts and contracts made by an employe, the latter may be personally responsible on contracts made for his employer. Therefore, it is important to know that, using as a basis higher court cases decided during the past two years, the following rule has been formulated:

An employe is personally liable (1) if he makes a false written or oral statement or representation of his authority with intent to deceive one who intends to transact business with his employer; (2) or, if he performs any unlawful act with or without authority of his employer; (3) or, if he performs a damaging or injurious act although believing that he has authority, but actually has none; (4) or, if he wilfully performs an act which results in damage to any one; (5) or, if he does damaging acts outside his scope of authority, although while so doing he intends to render his employer a valuable service; (6) or, if he intentionally assumes an obligation for his employer; (7) or, if he unintentionally but legally assumes an obligation while performing services for his employer.

Very often litigation arises where a person makes a contract for his employer but in fact he makes himself personally liable, and without obligating the employer in any way.

For example, in Campbell v. Porter, 61 N. Y. S. 712, the litigation involved a contract signed "John A. Porter, Agent." In this instance the court explained that where a person signs a contract, or other paper, by affixing his own name with simply the word "agent" added, such a contract is the signer's own for which he is personally responsible. To avoid personal liability Porter should (if he were authorized to do so) have signed his employer's name to the contract and added "By John G. Porter, Agent."

Law of Breach

Another important point of the law is that a person who purposely and maliciously induces another person to breach a valid contract is liable in damages, and liable for payment of three or more times the actual loss sustained by the other party, since the courts desire to make examples of persons who induce the litigation.

On the other hand, legitimate competition always is lawful, and a person is not liable who uses fair competitive methods, notwithstanding another's entire business is swept away by the competitive strife, but it is malicious inducement of litigation which always renders the guilty person heavily liable in damages.

Obviously, any person is liable in damages who breaches a contract, irrespective of the nature of the contract. For example, in a recent case a veterinarian contracted to pay a real estate agent 5% commission to sell property. The agent was ready to close the deal when the veterinarian decided that he did not want to sell. The agent sued and recovered the 5%.

In another case a veterinarian agreed to administer to county cattle for $2,000 a year. After a period of six months a new supervisor refused to proceed with the contract. The veterinarian filed suit and collected $1,000 from the county.

In still another case a veterinarian was awarded a position by contract on the municipal board at $5,000 per year. A new administration refused to permit him to serve. The veterinarian sued and recovered damages amounting to $3,350, his estimated loss.

Practical Mastitis Control

MASTITIS is a chronic, inflammatory disease of the udder[1], caused principally by the *Streptococcus agalactae,* in which gland tissue is replaced by fibrous tissue.

There are many inaccurate conceptions among veterinarians regarding mastitis, due, probably to a lack of information about the nature of the disease. Virchow took medicine from the imaginative field and put it on a scientific basis, but many common conceptions concerning mastitis seem not to have benefited from Virchow's work. That is to say, many of the widely accepted concepts concerning mastitis belong in the imaginative field.

THE nature of mastitis differs radically from the nature of some other infectious diseases with which we are familiar, and the rules for handling them are not applicable in mastitis. Tuberculosis of cattle is one such disease. In this case, all we need to keep in mind is the tubercle bacillus and if we direct our efforts to combating this organism, we can control the infection. Such is not the case with mastitis. Rules, successful in the control and eradication of bovine tuberculosis, are futile when applied to mastitis.

Notwithstanding the vast amount of research and the many publications concerning mastitis that have been issued, the disease has continued to increase in prevalence and destructiveness year by year, until now it is the most costly of diseases to the dairy industry.

When a veterinarian is called to a herd to handle its mastitis problem, it is because of necessity—because of losses the owner of that herd is experiencing or because of regulations which he must meet to dispose of his product. The owner of the herd is therefore in a receptive mood and in the ordinary case, his full cooperation may be had. The first requisite is a diagnosis—a complete survey of the herd to determine the presence and extent of the disease, both in the herd as a whole and in the affected cows.

THE first approach should be an inspection. Look at the full udder. Is it symmetrical? Does any teat hang lower than its mate? Following this inspection and a careful notation of the results, various tests should be made. In doing this, it should be kept in mind that the tests in themselves do not amount to anything, but that the tester is very important.

The first test to make is the strip-cup test. It is of inestimable value, but its findings are not conclusive. It may reveal no clots in 50 consecutive cases of mastitis. Nevertheless, to condemn the strip cup test is to condemn the man who makes it.

The second examination is made by milking 5cc into a tube from each teat, and examining the milk in good light. This is very important and reveals many abnormalities of milk not revealed by the strip-cup or perhaps by any other test. The first ten or twelve streams of milk should be discarded in selecting samples for inspection. After the samples are inspected and the findings noted, the samples should be set aside for 24 to 48 hours, at room temperature, and examined again. The cream line is not sharp in mastitis milk, as in normal milk. In the examination of samples, 24 to 48 hours after they have been drawn, if mastitis is present there is very likely to be flakes on the bottom of the test tube or bottle. Finding these flakes is very significant. A cow is recalled in the milk of which such flakes were found, but in which in 19 bacteriological examinations streptococci were found only twice. These examinations reveal a great deal of incidental information. After the second examination, heat the milk and note the effect.

At the time the samples of milk are obtained for examination, other samples may be obtained and submitted to the thybromol

[1] Notes from a discussion at a recent veterinary conference.

test, and the reactions noted. A bacteriological examination may be made from samples obtained in the same way. However, the information obtained from all the examinations so far mentioned is merely incidental. The examination of the udder is the basis upon which all this incidental information is to be interpreted. It is important that the veterinarian be his own authority in his own field. He cannot shift the responsibility to some chemical test or to the bacteriological laboratory and handle mastitis successfully. It is not that sort of an ailment.

THE great obstacle to the better diagnosis of mastitis is the mass of assumption by men who have never operated in this field. That a cow should shed streptococci in her milk before one can detect fibrosis in the udder, is a perfectly reasonable assumption and in the literature there is a vast mass of proclamations based upon this assumption. Unfortunately, it is an assumption that is not true.

One must judge of the presence of mastitis by the evidence that it gives, not by the evidence that it fails to give. If streptococci are found in the milk, if clots are found in the strip cup, if the reaction to the thybromol test is positive, it is indicative of mastitis. If streptococci are not found in the milk, nor clots, nor blue color on the addition of thybromol, in no sense does it justify a diagnosis of freedom from mastitis. It merely means that so far as these tests are concerned, there is no evidence upon which to base a positive diagnosis. One must go ahead with the examination and make a diagnosis upon what is found, not upon what one fails to find.

THERE is hardly anything else that a veterinarian can do for the owner of a dairy herd that is so profitable as the handling of mastitis. It is common to increase the butter fat production of a herd 50% by work done in the stable. All experienced veterinarians will testify that mastitis is an extremely unsatisfactory disease to treat. The veterinarian's objective should be to prevent it. Probably no other serious disease lends itself so readily to a few simple measures for its control.

* * * *

PHYSICAL EFFICIENCY

Recent studies indicate that the peak of physical efficiency, as represented by strength, skilfulness and speed of movement, is reached by humans at about twenty-four years of age. Therefore the information that over two-thirds of those who apply for service in the United States Navy during peace times are rejected because of disqualifying physical defects comes as a distinct shock to students who recognize that such conditions are largely preventable.

* * * *

BAFFLING OUTBREAK OF TUBERCULOSIS

For 18 years the dairy herd of the Bureau of Dairy Industry of the U. S. Department of Agriculture, which is maintained at Beltsville, Maryland for experimental purposes, has been an accredited tuberculosis free herd. At the periodical tuberculin test in April, 1935, one animal was classed as a "suspect." On the 90-day retest (July), there were three positive reactors; at the second retest (October), one reactor, and on the third retest, which was made in January 1936, of the 378 animals in the herd, 93 reacted, 82 being classed as positive and 11 as "suspects."

The source of the infection is under investigation, with as yet no clues to its solution. The character of the outbreak negatives all experience as to the manner of spread of tuberculosis among cattle from natural infection, and seemingly classes the source as being of accidental or malicious origin. The herd is a self contained one, to which there have been practically no additions from without for seven years. It is housed in eight barns, in seven of which, all except the bull barn, the infection was found. All reactors were cows, heifers or calves; none of the 25 bulls in the herd being affected.

Removal of Foreign Bodies In Small Animal Practice

The illustration shows conspicuously, Dr. Herbert M. Tabbut (right) and the writer, veterinarians of the Animal Rescue League of Boston, and less conspicuously but more important to the reader, an instrument of my own design for the removal of foreign objects from the throat, stomach and lower bowel of animals.

We have used this instrument several years and have found it very helpful. In the illustration it is shown with a tin washer grasped in the tip. This washer and five others shown on the table, were removed from the stomach of a small patient. They were revealed by the fluoroscope. Our usual procedure is:

Nembutal anesthesia. Place the animal under the fluoroscope, extend the head, withdraw the tongue, insert the closed instrument into the esophagus and pass it carefully to the stomach. This passage is observed under the fluoroscope. A little manipulation will bring the mouth parts to the foreign objects, then the instrument is opened and the foreign objects gripped and removed. There is no hemorrhage, no cutting, nothing but the nembutal anesthesia, and to say the least, a serious laparotomy is avoided.

The instrument is opened by the principle of a snare. The long part of the instrument is 24 inches, this being a sleeve through which is passed a rod with a spring serrated mouth. When the rod is pushed toward the tip of the sleeve, the mouth part springs open, as it is withdrawn the mouth parts are forced shut. The movement of this rod within this sleeve is carried on by the usual mechanical arrangements of snare handles.

We have removed other objects, such as pieces of zinc attached to identification tags used in laundries and cleaning establishments, pennies, bits of metal, stones, some bones, padlock key, string, etc. Similar objects have been removed from the lower part of the alimentary canal.

This instrument is made, after my own design, by two of our surgical supply houses. I believe other veterinarians will find it useful. They are welcome to it. It certainly will save the ordeal of serious surgical interference and will eliminate much discomfort among patients.

The Animal Rescue League of Boston handles about 100,000 animals per year. The vast majority of these animals are either homeless or unwanted, many of the latter being turned over to us by their owners. We maintain a clinic and not a hospital, and put forth a very strenuous effort to confine the activities of this clinic to those actually deserving charity.

W. A. Young,
Chief Veterinarian
Boston, Mass.

An Eczematous Condition of Cattle

By JOHN FREDENBURG,
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During the first 20 days of May, 1935, several cases of eczema in cattle came under my observation.

Our pastures, blue stem, were grazed very close during the severe drouth of 1934 and there was little in the way of vegetation except weeds the following May.

All animals affected were on grass and all were cows except one, a Jersey bull. Occurrence was irregular, both in number and location. In one herd of 130 Herefords, seven were affected at the same time. In another, a dairy herd, only the bull and one cow were affected. In another herd of nine milk cows, five were affected. Usually isolated cases were noted, or two or three in a herd. In all, I saw about 40 cases distributed over parts of three counties.

Eczematous spots appear on the skin, around the mouth, nose and eyes, and on the ears, teats and udders. Less often on the neck, flanks and inside of the thighs. Occasionally they appear on other parts. First a viscid exudate appeared, resembling a blister, due to a severe caustic. This hardened to a scab, which in a few days peeled, leaving the skin particularly that around the eyes and mouth and on the teats, cracked and raw. About the flanks and elsewhere on the body, dried patches of skin sometimes separated and hanging by one end presented a strange appearance.

In the early stages, pain is intense. The symptoms vary. If the neck and head are affected, the cow tries to rub; if the ears, she shakes her head; if the udder, pain is aggravated by distention and she moans, lies down frequently and assumes unnatural positions to relieve pressure.

There is some fever at first with little desire for feed and a decided shrinking in milk flow and flesh. After a few days, the acute symptoms subside, the scabs peel and in time, the cracks and raw patches heal. One mule was affected exactly like the cows. There were no deaths. The pain and itching is quickly relieved and recovery hastened by the application of any ointment or oily application. A change of feed stopped the progress of the ailment.

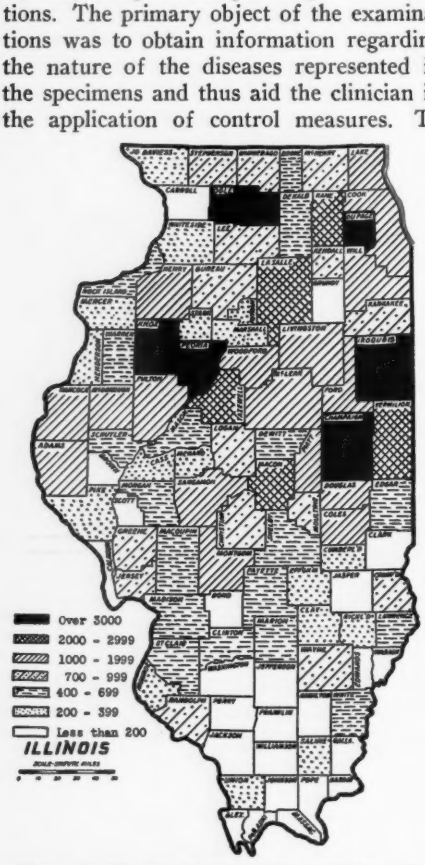
The whole picture is that of a food allergy, but no plants responsible could be found, i.e., none were found but common weeds and grasses customarily eaten by cattle. In some cases, ears, the end of the tail and claws sloughed off, but a careful search of the premises failed to reveal any ergot. Most cattle in this section were pastured on wheat, either sown or volunteer during the winter of 1934-35 and probably on this account, the farmers commonly called the condition "wheat poisoning," but the history was not invariably one of having pastured on wheat. Furthermore, the great majority of cattle on such pasture suffered only a mineral deficiency, which seems foreign to this condition.

The condition has never before been observed in this locality. I have found no mention of it in available literature, except that just possibly the outbreak near Neosho, Kansas in 1884, that was at first diagnosed as foot-and-mouth disease and later as ergotism, may have been a related condition. There were differences however. The outbreak of 1884 occurred during the winter, among cattle in feed lots, abundant ergot was found on the hay fed and the mortality was fairly high. The nervous symptoms and the skin lesions were similar in both outbreaks, but in the earlier condition, mouth lesions and foot lesions were always present; in the latter, only occasionally present. Swine erysipelas is becoming common among the hogs in this section and the disease occurs also in sheep and man. It has not been described in cattle, but the lesions in this condition resemble closely skin lesions sometimes seen in erysipelas of swine. No organisms were found, however, that appeared significant.

Epizootological Data from Laboratory Diagnoses

By VIOLA M. MICHAEL and ROBERT GRAHAM,
Division of Animal Pathology and Hygiene, University of Illinois, Urbana, Illinois

DURING the past four years more than 100,000 specimens from diseased herds and flocks were received for examination at the Diagnostic Laboratories of the Division of Animal Pathology and Hygiene of the University of Illinois. A study of these specimens included autopsies and bacteriologic, serologic, microscopic and pathologic examinations. The primary object of the examinations was to obtain information regarding the nature of the diseases represented in the specimens and thus aid the clinician in the application of control measures. To further assist and coordinate efforts in disease control, copies of diagnostic results were sent promptly to the office of the chief veterinarian, State Department of Agriculture, Springfield, Illinois. The fee charged for laboratory diagnoses by the University was discontinued in 1931 through an arrangement with the State Department of Agriculture which provided for the assignment of Dr. E. H. Barger, Animal Pathologist; Dr. J. P. Torrey, Assistant Animal Pathologist, and Miss Barbara Harris, technician, to the Division to assist in diagnostic and experimental work.



Map of Illinois showing the number of specimens submitted from various counties. The University is in Champaign County.

In addition to the assistance afforded practitioners and official state agencies in disease control through laboratory diagnoses, a study of the results of these examinations has contributed information concerning the general incidence of different diseases. Accurate statistical data, regarding the prevalence of many diseases of food-producing animals, are available through the meat inspection division of the Federal Bureau of Animal Industry. The information included in the following report is intended to supplement statistical information from the above mentioned source. Federal reports of tuberculosis, actinomycosis, and many other chronic diseases detectable at the time of slaughter, provide valuable information for sanitarians and stockmen, but it is commonly recognized that many prevailing diseases of food-producing animals fail to come to the attention of post-mortem inspectors; nor is information regarding the prevalence of some of the more serious diseases of animals available through other official channels. For example, diseases of poultry,

rabies, Bang's disease, hog cholera, swine erysipelas, and parasitic infestations, which cause heavy losses, are not legally reportable although their occurrence is recognized as a serious handicap in animal production.

In the following tabulations of the prevalence of various animal diseases, only those encountered in laboratory diagnoses have been included. Obviously, diseases prevail which are not included in the tabulation and the losses incurred because of the tabulated diseases are not indicated. Such tabulations do, however, give some definite information concerning the presence of various diseases and a suggestion of the extent of infection. In this connection mention is made of the value of a summary of laboratory findings in the control of rabies. Likewise, the detection of screw-worm infestation in Illinois during the late summer months of 1935 has enabled practitioners and stockmen to employ preventive measures promptly.

A knowledge of the prevalence of animal diseases in Illinois gained from the results of laboratory findings during the 4-year period, July 1, 1931 to June 30, 1935, may be of value to flock and herd owners in so far as the summarized information is interpreted and applied by the practitioner in checking and preventing the spread of disease and in assisting the stockmen to employ approved measures of prevention. While prevention is the responsibility of the stockman under supervision of the local veterinarian, interpretations and explanations of epizootological summaries will depend upon the practitioners.

Source of Diagnostic Specimens

In an analysis of the origin of diagnostic material coming to our attention, it is apparent that the territory closest to the laboratory submitted more specimens for diagnosis than territories more remotely located (See Map). The majority of specimens, with the exception of those from the University herds and flocks, were received from veterinarians, farmers, and hatcherymen. The activity of each group is indicated in Figure 1. The term "farmer" in the figures has been used to include all stock raisers, poultrymen, and pet owners. Since blood samples tested by the federal and state laboratories must be drawn by approved veterinarians, practically all blood specimens

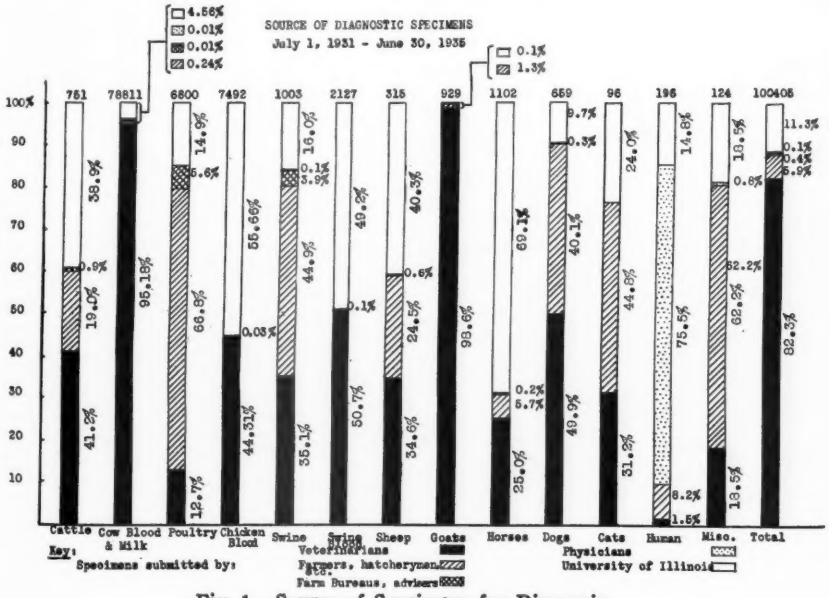


Fig. 1.—Source of Specimens for Diagnosis.

have been submitted by practicing veterinarians or by veterinarians connected with the Animal Pathology Laboratory. The majority of poultry specimens, however, have been submitted by the flock owner; only 12.7% of the poultry specimens, excluding blood, received by the Laboratory had passed through the hands of local veterinarians. It is apparent, therefore, that there is need of a more comprehensive veterinary service in the solution of disease problems confronting flock owners.

Cattle Diseases

Figure 2 is a summary of the most important cattle diseases which have been diagnosed during the years, July 1, 1931 to June 30, 1935. In order to simplify this figure, a few cases of unclassifiable diseases, such as paralysis, sarcoma, sunstroke, injuries, poisoning, etc., and nutritional diseases have been omitted. All those transmissable from one animal to another have been included.

Approximately three-fourths of all the specimens received for examination have been cow blood. Of these blood specimens 14.2% have shown positive agglutination when tested with infectious abortion (Bang's disease) antigen. This percentage is probably lower than the percentage of cattle really infected because of the fact that cooperators in the Bang's disease control project make frequent tests of their non-reactors. Thus, the percentage of negatives on the Animal Pathology records is higher than that obtained by the tests now being carried on by the testers in the Federal project for the control of Bang's disease.

Of the milk samples tested for Bang's disease 6.1% were positive. Since only 2,711 milk specimens were tested for this disease and the majority of these came from University herds, this is not a fair percentage to compare with the percentage of blood positives.

Mastitis appears to be next in importance in so far as numbers are concerned. Of 738 milk specimens, 19.3%, most of which were tested with bromthymol blue,

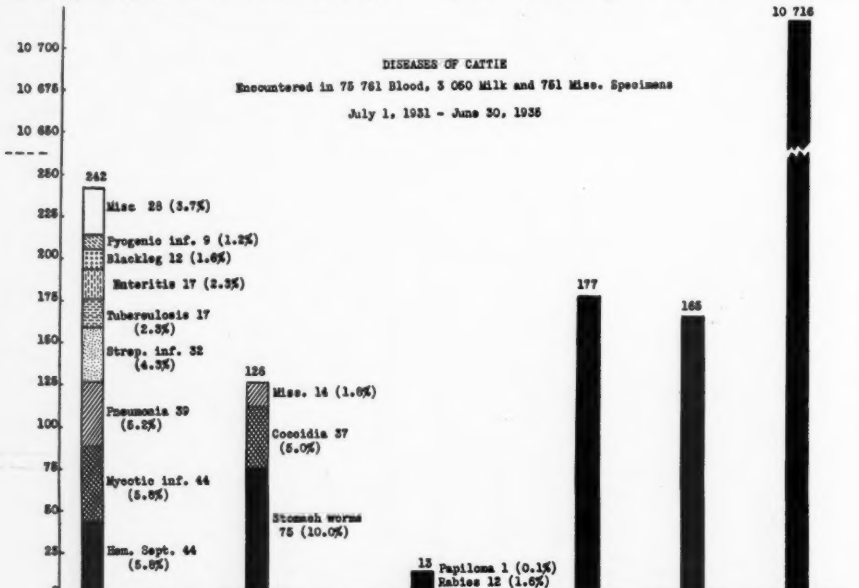


Fig. 2.—Diseases of Cattle.

gave evidence of having been taken from infected cows.

Other bacterial and fungous diseases of cattle which might be noted are hemorrhagic septicemia (5.8%)*, mycotic infection (5.8%), and pneumonia (5.2%). Tuberculosis is being eliminated rapidly. The 17 cases shown on the figure were specimens received from the Union Stock Yards in Chicago in 1932.

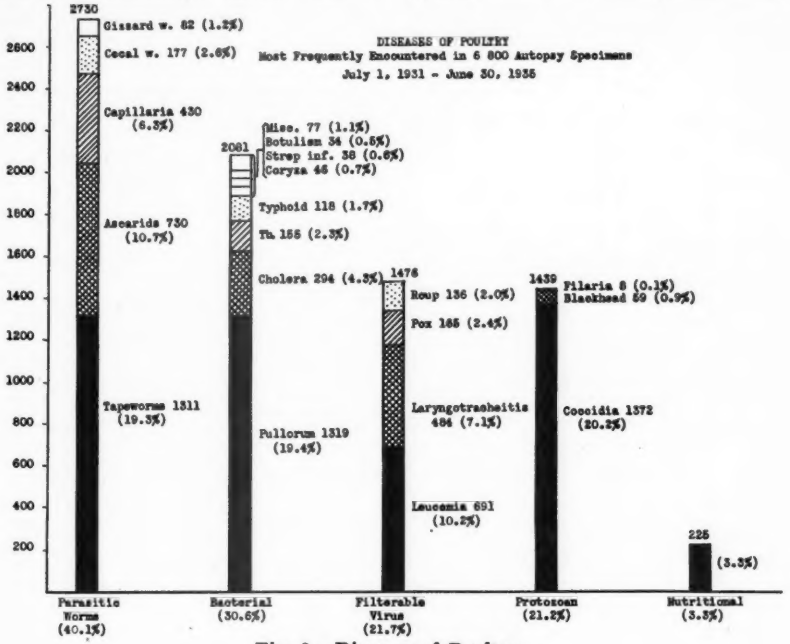


Fig. 3.—Diseases of Poultry.

A few isolated cases of navel infection, white scours, abscesses, calf diphtheria, pyemia, and peritonitis were diagnosed and listed as miscellaneous bacterial diseases.

Stomach worms (10%) were the most common of the parasitic worms, and coccidia (5%) the most common protozoan parasite encountered. The miscellaneous parasites include a few cases of intestinal worms, lice and mites.

Poultry Diseases

Poultry mortality is a really serious problem for the farmer and poultryman. It has been estimated that poultry mortality throughout the United States is approximately 40% annually. This figure is indicative of the need for veterinary service in poultry disease control.

Figure 3 shows that parasitic worms and protozoa are the most frequent causes of poultry losses, so common that many poultry raisers believe that they cannot raise poultry "free from parasites." Coccidia take the lead with a 20.2% infestation. Tapeworms follow closely with 19.3%, while ascarids (10.7%) and capillaria (6.3%) lag slightly behind in numbers.

The 40.1% at the bottom of the "parasitic worms" column in Figure 3 is probably a little misleading since it is the sum total of the entire column and many of the fowls examined were infested with more than one parasite. Figure 4 gives a more accurate picture of the number of fowls in which parasites were found. Over a period of five years, 24.16% of all fowls received at the Laboratory for examination were infested with from one to four types of parasitic worms. If every specimen had

* Percentages were figured on the basis of the total number of miscellaneous specimens examined.

been examined for parasites, the percentage might have been higher.

Figure 4 also shows that instead of being brought under control, parasitic worms

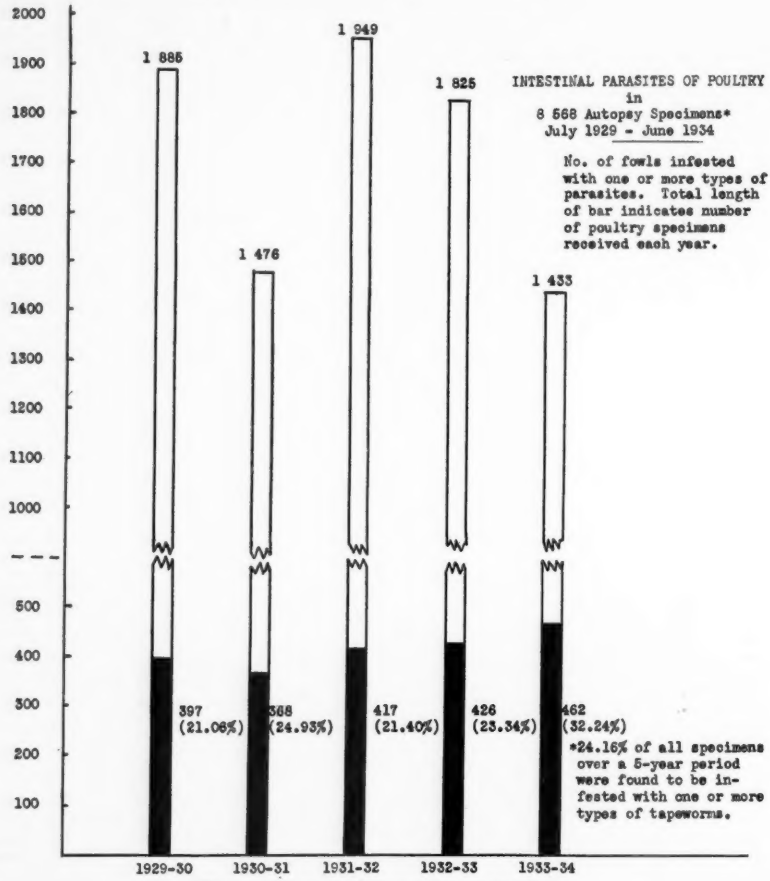


Fig. 4.—Intestinal Parasites of Poultry.

be infected with *Salmonella pullorum* and 2,132 (28.5%) of 7,492 blood specimens, not included in Figure 2, agglutinated pullorum antigen.

are not only holding their own, but increasing their numbers. They appear to be most prevalent during the late summer and fall months, the time of year when their insect hosts are most numerous and easy for the poultry to catch (Figure 5).

Bacterial diseases are also doing their share of damage. They have one representative, pullorum disease (bacillary white diarrhea), which slightly exceeds tapeworms in number of victims. Of all autopsy specimens examined 19.4% were found to

Other infectious diseases which are wreaking havoc in farm flocks in Illinois are leucemia (10.2%), laryngotracheitis (7.1%) and cholera (4.3%).

The majority of non-infectious diseases occur because of errors in diet. Examples of these are indigestion, nutritional roup, gout, and vitamin deficiency diseases, all of which have been included under nutritional diseases (Figure 3).

In poultry, as in cattle, there were found a number of unclassifiable diseases, such

as sarcoma, injuries, poisoning, impaction of crop and gizzard, eversion of oviduct, enteritis, etc., which were not included in the tabulation of the most prevalent diseases.

Swine Diseases

Hog cholera, a preventable contagious disease, appears to be the most frequent, most fatal and most costly disease of swine (34.2%). It is at all times present in some part of the country. Needless to say, if all farmers would have their herds immunized near weaning time, hog cholera losses would be reduced to almost nothing.

After cholera comes infectious abortion; 21.9% of the blood specimens examined gave a positive reaction to the agglutination test (Figure 6). During the years 1931-34, cases of infectious abortion were diagnosed in 26 herds in 22 different counties in Illinois. If testing of herds were more widespread, the chances are that many more infected herds would be found.

Infectious enteritis (16.9%), bacterial pneumonia (12.5%) and hemorrhagic septicemia (4.8%) have been the most frequently encountered bacterial diseases, while swine erysipelas (3.3%) is spreading rather rapidly. Twenty-seven of the 33 cases of erysipelas listed were diagnosed during 1934-35. Since this disease is frequently mistaken for cholera or some other infection, it may be more widespread than we realize.

Parasites also exact an enormous toll from the swine industry. Losses result from improper treatment, as well as from direct injuries from the worms. Ascarids (19.3%), whipworms (8%), lungworms (8%), thornheaded worms (2.3%) and stomach worms (1.6%) were most frequently encountered.

Nutritional diseases, especially iron deficiency in suckling pigs, also cause losses. Anemia is sometimes observed in pigs which are raised indoors and have no access to soil or direct sunlight.

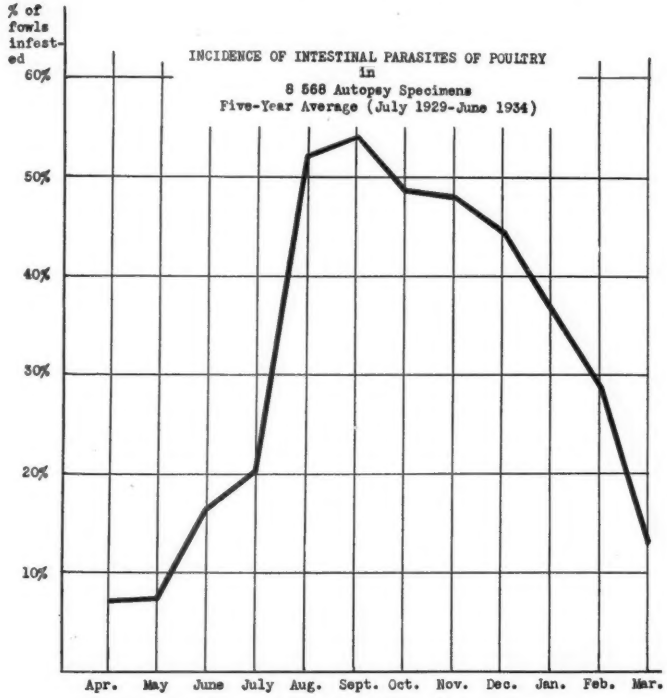


Fig. 5.—Incidence of Intestinal Parasites of Poultry.

Horse Diseases

During the last few years a special attempt has been made to control parasitic diseases in horses; therefore, a large number of fecal specimens have been examined (Figure 7). Strongyles (37.3%) far exceed other types in frequency of occurrence, with ascarids (3.8%) and bots (1.3%) rather far down the line. Doubtless the percentage of bots and ascarids in the field would be much higher.

Brucellosis (1.8%), equine abortion caused by Salmonella microorganisms (1%), and streptoccocus infections (1.2%) were the most common bacterial diseases encountered.

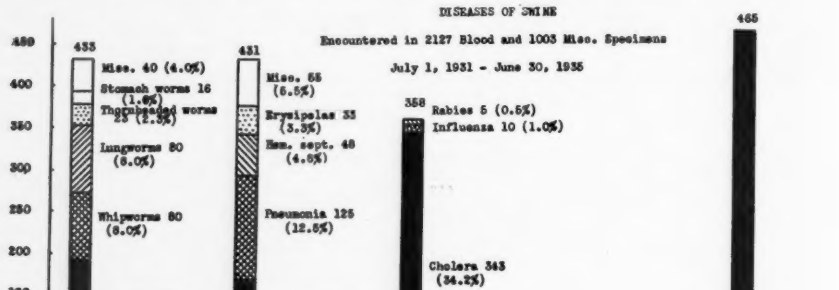


Fig. 6.—Diseases of Swine.

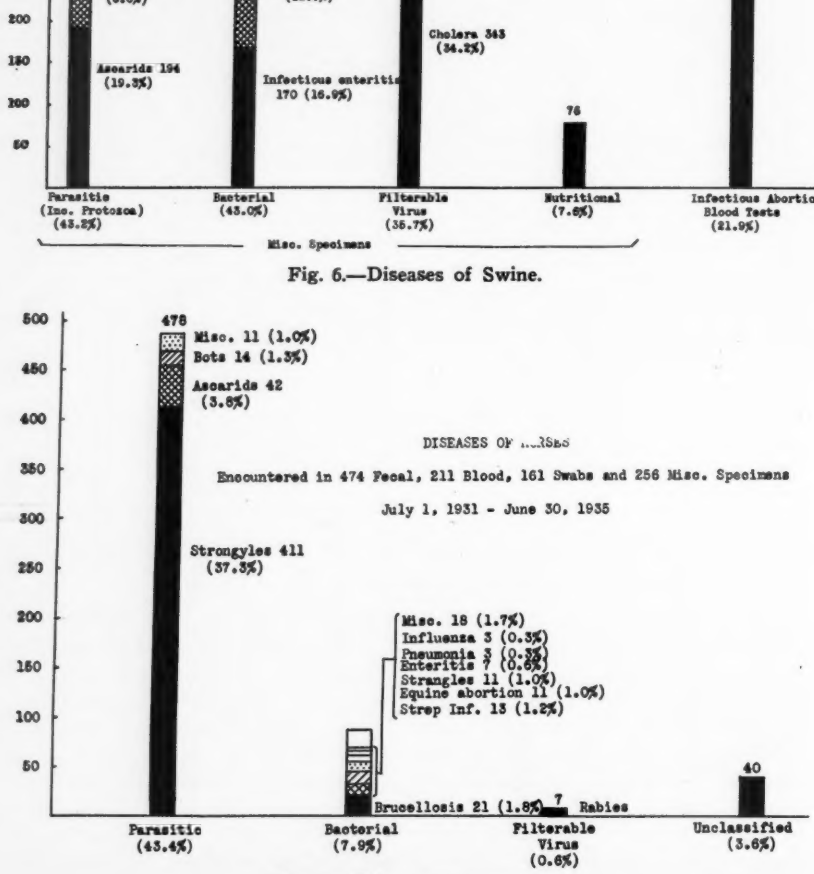


Fig. 7.—Diseases of Horses.

The laboratory investigation of horses having so-called cornstalk disease has been experimental rather than diagnostic in nature; therefore it has not been included in this figure. It has been estimated, however, that more than 5,000 horses in Illinois died of this disease during the season of 1934-35.

Sheep Diseases

Comparatively few sheep specimens have been received for diagnosis by the Animal Pathology Laboratory. Here also (Figure 8) the parasitic diseases seem to be causing the most trouble. In the 315 sheep specimens examined, stomach worms (14.6%), coccidia (5.7%) and the nodular worms (4.8%) were most frequently encountered. Among the bacterial diseases, hemorrhagic septicemia (8.9%) and pneumonia (3.5%) rank highest. Several cases of nutritional diseases (5.7%) and of lambing paralysis (4.8%) were also observed.

Dog Diseases

The most important diseases observed in the 659 dog specimens were rabies and parasitic diseases. A few cases of mites, distemper, enteritis, sarcoma, leucemia, etc., were diagnosed, but they were not numerous enough to merit charting.

Two hundred fifty-nine of the above specimens were fecal specimens (Figure 9). Of these, 19.7% contained hookworm eggs; 18.1% ascarid eggs; 7.0% coccidia; 2.7% tapeworm eggs, and 2.3% whipworm eggs. There has been a very noticeable increase in the number of fecal specimens received by the Laboratory during the last two years. It appears that dog owners are becoming more aware of the possibility of parasite infestation.

Figure 10 is a tabulation of data obtained from the Animal Pathology Laboratory, University of Illinois, and the state laboratories located at Springfield, Carbondale and Chicago, and covers a period of ten years. Rabies is a disease which has occurred for hundreds of years and if more stringent methods of control are not used in the future than in the past it will occur for hundreds more. Public sentiment and the stray dogs are probably the greatest hindrances to control of rabies.

The highest peak in Illinois was reached in the year 1927-28 (Figure 10), during which year 59.4% of all dog heads examined were positive for rabies. During this same year there were 107 deaths (of persons) reported in the United States; 13 of these deaths occurred in Illinois. By 1930-31 the disease seems to have been somewhat under control. Only 24.7% of the heads examined during this year

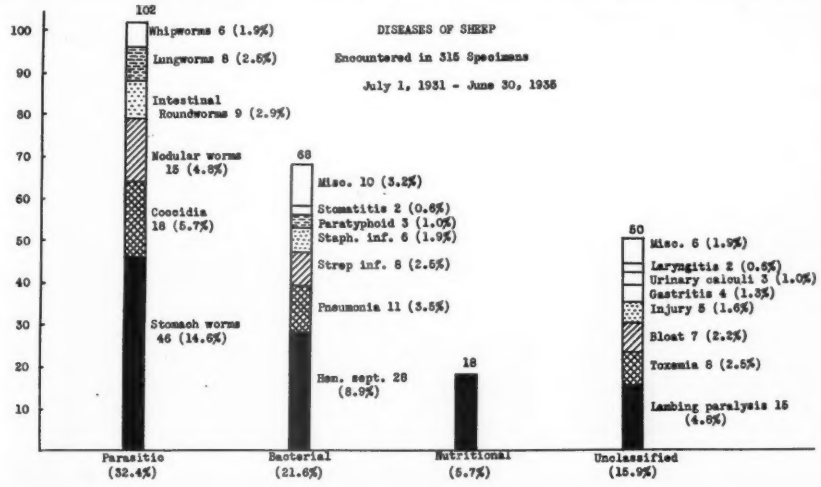


Fig. 8.—Diseases of Sheep.

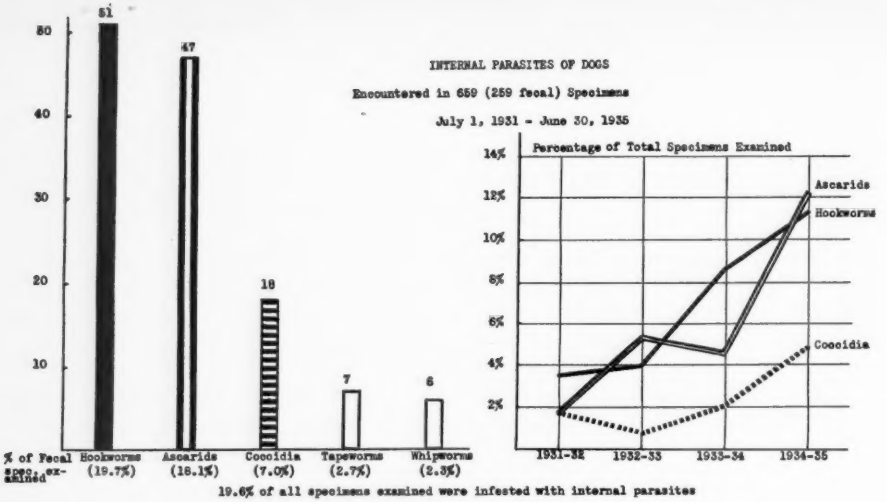


Fig. 10.—Canine Rabies in Illinois.

were positive. Since then the number of positive diagnoses of rabies in dogs has been again increasing until last year (1934-35) 41.9% of the dog heads examined were positive.

The total number of dog heads examined during these ten years was 5,952, of which 2,556 (42.9%) were positive. During the same period there were 55 human deaths, just 55 too many when one takes into consideration the information which is available concerning the mode of transmission and means of control. The loss in farm animals from this disease is high, and cost of the Pasteur treatment for persons a matter of moment.

Public Health Significance

Figure 11 indicates graphically the possible relation of the animal diseases to public health. The heavy black sections indicate

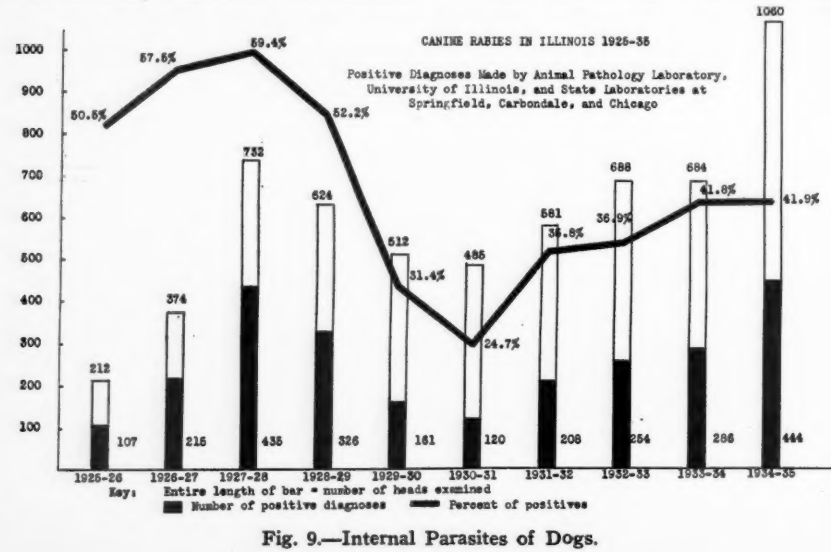


Fig. 9.—Internal Parasites of Dogs.

the percentage and number of diseases which may be transmitted directly from animals to man; the diagonal barred sections, those the transmissibility of which depends upon their causative agent; the sections consisting of three parallel lines, those of questionable transmission; the four parallel lines, those which we are fairly sure cannot be transmitted from animals to man, while the two parallel lines sections indicate blood and other specimens which gave negative results in various tests or which were decomposed so that no diagnosis could be made.

The heavy black sections include such diseases as

1. Infectious abortion in cattle, swine and goats.
2. Rabies in dogs, cats, cattle, swine, horses, goats, foxes and coons.
3. Tuberculosis in cattle, poultry and swine.
4. Anthrax in cattle.
5. Glanders in horses.
6. Erysipelas in swine and poultry.
7. Mycotic infection in cattle and swine.
8. Pyogenic infection in cattle, swine and goats.
9. Salmonella infection in cattle, swine and sheep.
10. Tapeworms in cattle, dogs and cats.
11. Ascarids in swine.

The diagonal barred sections include

1. Mastitis in cows.
2. Enteritis in cattle and swine.

When mastitis is caused by streptococci or staphylococci which are pathogenic for man, it may be considered as a disease transmissable to man; otherwise it probably should not be so considered. Likewise, when enteritis is caused by one of the Salmonella group there is a possibility of food poisoning in man if the meat of the affected animal is consumed without having been well-cooked.

The three parallel lines sections include

1. Pullorum disease in poultry.
2. Pox in poultry.
3. Typhoid in poultry.

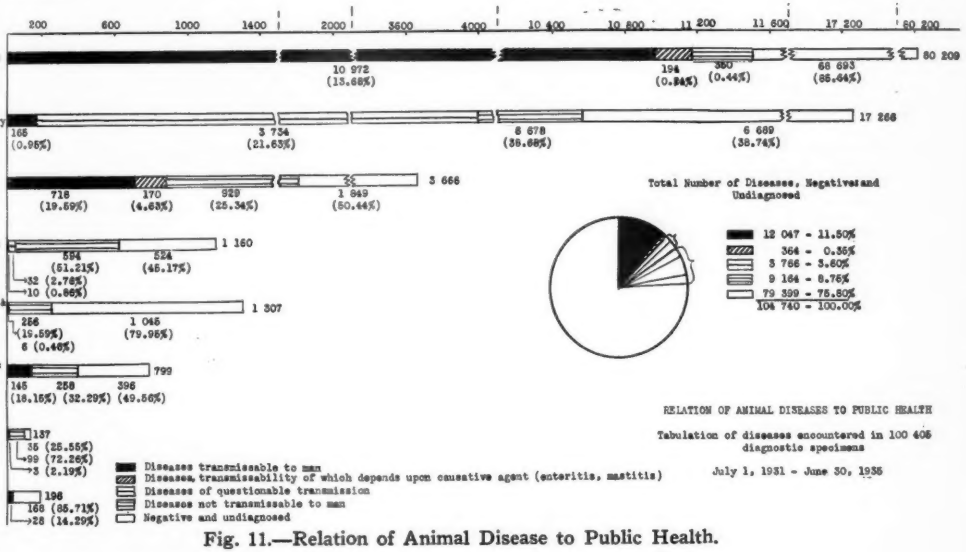


Fig. 11.—Relation of Animal Disease to Public Health.

4. Brucellosis in horses.
5. Salmonella abortion in horses.

Reports have been found in literature concerning infection of man by microorganisms or viruses causing these diseases, but these reports have not as yet been suf-

ficiently confirmed. Therefore, they are considered as questionable.

In conclusion it may be said that the various animal diseases which threaten to lower the profits of animal husbandry present, first, a problem of diagnosis, and second, a problem of treatment and control. Laboratory diagnostic procedures have proved to be increasingly helpful to the clinician and livestock sanitarian in formulating sound methods of control, while a summary of results of laboratory diagnoses presents epizootological data of value in determining the significance and prevalence of animal diseases.

A plan whereby all contagious diseases of animals might be reported by clinicians to official control agencies would supplement and complete information on the occurrence of contagious diseases of animals and would be a decided asset to the animal industry. Such a procedure would, of course, necessitate the keeping of complete records by each diagnostician and the sending of weekly or bimonthly reports to the State Department of Agriculture or some similar office, and the summarizing of the data thus secured by a competent statistician.

HEAVY INCREASE IN FEEDER CATTLE

More good beef will go to market in the first four months of 1936 than in the same months of 1935, if cattle feeders carry out their first-of-year plans, says the Bureau of Agricultural Economics.

But cattle in the feed lot at the first of this year in the 11 Corn Belt States numbered 25 to 30% less than the 5-year average, although 41% greater than last year, the largest increase in the 14 years that reports have been made. Last year, the decrease in fattening cattle from January 1, 1934, to January 1, 1935, was the greatest ever recorded.

Feed-lot operations increased about 48% in the western Corn Belt as compared to about 29% in the eastern Corn Belt. Greatest percentage increases were: South Dakota, 220; Nebraska, 195; Missouri, 160; and Kansas, 150.

Cattle on feed in the 11 Western States, Texas, and Oklahoma on January 1 numbered 78% more than those on feed a year ago and nearly one-third larger than the average for the 5 years, 1930 to 1934.

LACK OF UNDERSTANDING BY PUBLIC

The lack of public understanding and appreciation is one of our greatest difficulties, and will not soon be overcome. It is impossible to explain to a person with no scientific background what the field of medicine can do for humanity. Human progress and happiness is dependent on human health and this can be no better, generally speaking, than the state of disease or health of life as a whole. Medicine was born of mysticism and baptized in religious prejudice. Modern science released the bonds, but a public attitude, centuries old, is not easily shaken off. Too many people still expect miracles, instead of the operation of scientific principles in the field of medicine.—*C. H. Stange.*

DISPLACEMENT OF THE HEART

This calf was born on the farm of Herbert W. Thielman, Route 1, Brenham, Texas, December 27, 1935 and lived four days. It was sent to the A. and M. College of Texas where it now is.

A similar case was described in Spezielle pathologische Anatomie de Haustiere Vierter Band, page 343, by Ernest Jaest.

Practical Treatment of Fistula

By P. W. MILLER,
Cortland, Ohio

SUCCESSFULLY handling those chronic suppurative conditions known as fistula and poll-evil, and particularly the former, offer considerable difficulty, not only because of the chronicity and stubbornness of the ailment, but because of the low value of many afflicted animals and the necessity of keeping the cost of treatment down to a point where it will be profitable for the owner of the animal to have it treated. The ideal treatment is one that the veterinarian can give, without losing money, at a price of about $15.00, often somewhat less, for the average farm horse. For the treatment to be worth even this sum to the owner, the animal should be able to go back into service within a period of not more than two months with a minimum of scarring and without having required of the owner much more than a daily cleansing while under treatment.

These conditions practically limit the treatment to a single visit, or at most two visits from the veterinarian, the employment of inexpensive internal medication and a minimum of surgery consistent with the establishment of drainage. The following case reports illustrate how I have handled this somewhat complicated situation.

Case 1—Black mare, seven years old, registered Percheron. The animal was treated by the owner for three months, using a nationally advertised remedy from Chicago. Fortunately the owner had the good sense to keep the shoulder greased and clean and the mare was not scarred from the caustic effects of the remedy. The condition, however, did not improve, so he called me in. When I first examined this mare there was a profuse discharge from several tracts leading to deeper pockets. I exacted a promise from the owner that he would not use any more remedies in an effort to effect a cure and to disregard any suggestions or cures from anybody whatsoever, before I would take more than a passing interest in the case. The owner said: "Well if you are so damned smart, proceed." I did. I made the usual drainage incisions, rather bold ones, and the owner kicked about my cutting the mare all up. I "laid off," knowing I had almost reached my objective, but at the same time feeling sure that it would necessitate another trip to complete the job.

I directed the owner to use nothing in the incisions; but to wash them open once daily, keep the shoulder clean by free use of a wooden sweat scraper and to use petrolatum as a protection from pus. I also instructed him to watch for any more swellings or abscess formations and if he saw any, to notify me at once.

I put the mare on iodine and lime, alternating every three days with copper, iron and arsenic, and antimony, iron and arsenic. Seventeen days later, I opened two more abscesses situated well forward and directly under the center of mane.

The mare made a complete recovery in about two months, was not scarred nor sunken about the shoulder in any respect, the straight incisions having healed to look like nothing more than wire scratches. The only time these healed incisions can be seen is when the mare is shed off.

Fee for the job: $12.50; cost to me two trips and about $2.00 worth of tablets.

Case 2—Sorrel gelding, nine years old, branded. The owner tried a remedy that cures 85% of these cases, but this one was in the 15% class. The "blossom" on this animal's shoulder was larger than a man's hand. I opened it freely for relief only, at about the upper third and center of the scapula; put the horse on the usual line of minerals in tablet form, which I think is the only way to use these drugs, since furnishing them in a hundred-pound sack will put one in the class of quacks quicker than anything I know of.

I informed the owner that I would see the horse in about ten days or two weeks,

to make another opening in another site—a lateral incision deep into the fenestrum of the ligamentum nuchae, as I never yet had a fistula recover without perfect drainage from that troublesome area, which is about two inches directly under the center of where the top of the collar rests on the neck. It was three weeks before I saw the horse again, at which time I used my curved bistoury at the seat of the trouble and removed three to four ounces of calcareous substance through a rather large incision. The first incision was healing nicely; the horse had taken on flesh at a surprising rate, even while the original incision was discharging profusely. I directed the owner to keep this recent incision washed open and not to disturb the first incision. This horse made a complete recovery, the shoulders are normal and the incisions are healed so nicely that they are almost hidden by a normal growth of hair.

By opening the fenestrum and getting perfect drainage, the large abscess stopped suppurating gradually, once again convincing me that the origin of this troublesome condition is in the lacuna of the ligamentum nuchae. Doctor Sisson used to stress that point in the class room—the origin of fistulas being in the fenestrum, and don't think that Doctor Sisson did not know that the fenestrum is there, some writers to the contrary notwithstanding.

This man's bill was $11.00, including about $2.00 worth of mineral tablets. Like the owner of case No. 1 he had already spent a greater sum for "dope" before I took the case.

I could report many of these cases, but all lead to the same place, that is, a pathological condition of the ligamentum nuchae. I have had several cases that were doctored by quacks and ignorant farmers, blistered, scarred and blemished, while all the time lodged in the center of the cervical region, anterior to the shoulders, the bottom of the pus pocket rested upon the cervical vertebrae. These cases must be opened for results, and a vertical incision generally heals by leaving a deep depression, sometimes with the skin growing deeply into the site of drainage. Several times I have severed the anterior branch of the scapular artery, but that makes a mess, requiring quick work on the part of the operator; so I prepare before making the incision by threading a large curved needle with umbilical tape, and if I get the artery I insert the needle through the skin over the artery at once, including necessary tissue and coming out just below the place of insertion; tie tightly. This is a crude but very effective way of controlling the hemorrhage. I have never yet been able to pick this artery up with hemostats from the incision, as it seems to retract too far. I use a horizontal incision now with very gratifying results. After all this fuss with these atypical cases, I at once "go for" the fenestrum, which in most of the cases will show no swelling from the outside, but contains a substance foreign to the host in some state, from calcification to liquefaction.

In practically all of these cases I operate with the patient standing, and without other than local anesthesia, as the operation consists simply of one or more straight incisions and depends upon drainage for results. It occasions less discomfort than narcotics or general anesthesia. Let the air in, reduce the pressure, cause the fenestrum to drain outwardly, thus removing the cause. The deadened tissue will slough immediately. Put the animal on proper minerals, change the feed, especially from white grass and timothy to good mixed hay or clover.

Case 3—Two colts, one a two-year-old and the other a three-year-old, were running on white grass pasture. The colts had never been hitched. From this pasture in the last 120 years thousands of pounds of beef and tons of milk have been sold, and nothing has ever been put back on the pasture. But back to the "blossoms" on these colts. The fistula on each colt was situated well forward. I procured drainage at once from fenestrum, changed the colts to tame pasture, supplemented with grain and the usual tablets. I treated one colt but once, and the other one three times, and they made complete recoveries in about

three months. These colts were rather wild and unruly and received no other treatment than that mentioned above.

Case 4—There were four cases on three horses in one barn that same winter; three fistulas and one poll-evil, one horse having both. The owner of these animals knew he was going to be short of good cow hay, so he cut down native pasture hay for his horses, or what we term native pasture here. This is not necessarily pure white grass, neither does it contain timothy or clover, but "native hay" which includes three or four different kinds of grasses that I cannot name.

He started to feed these horses this hay in October and by February all the cases had developed. I treated the horse with poll-evil and fistula and one horse with a fistula, using my usual line of treatment and with the usual result. The third animal, a mare, 17 years old, he gave to a smart neighbor that had a sure cure. The animal died in three weeks and what a mess; the neighbor had packed the openings full of baking soda but probably forgot to put the animal in the oven, or something.

Case 5—Pinto saddle pony, six years old, owned by a young lady who operates a riding school. This was a case of long standing, the animal having been suffering for about one year. Johnny H. Jr., sired by Johnny H., Sr., both typical quacks, senior now dead, had this case. Johnny H. Jr., treated the pony for over five months with his secret formula, but finally it blew up, looking like triplet coconuts. The young lady's father called me, bellowing loudly about the tough case that Johnny H. Jr., fell down on. Several days later, I opened the three abscesses and told the man that I would have to make an opening in a new spot, so that the "old pipes could go dry." He was not very much impressed with my talk and told me that Johnny H., Jr., could tell him more about a "thistlo" in ten minutes than I could in an hour, and when I cut into the fenestrum, he just roared; but I told him that though I said little I cut lots. After giving his daughter a few directions, I drove from the jungle hearing my pedigree traced back to tbe fairies.

This pinto was some 50 miles from my office and I did not see it again for about six months. The incisions had all healed, but the animal was scarred and blemished. He seems sound. The nice thing about this case was that the father said that he had sent away and got some "real thistlo medicine" which finished the cure. I gave the daughter and the real medicine credit aplenty, but still retained kind thoughts in regard to the incision over the fenestrum. Such cases are the spice of life. They make me wonder why I ever became a veterinarian. This man's bill is for sale.

In my immediate territory, there are located two typical quacks and several "thistlo" doctors, who, incidentally, are the poorest type of farmers this section affords. It has taken me about 20 years to convince even a small percentage of the owners of fistulous horses that veterinary service is the proper procedure in these cases. Just lately I have had several cases right under the noses of some of these quacks, with good recoveries in a reasonable length of time; but a veterinarian gets little credit for effecting a cure; the farmer thinks it was not a very bad case anyhow. But, when a quack cures one, it is shouted from the house tops. The only way that I have made any inroads on these veterinary bootleggers is by doing a more humane, smoother and quicker job, and I always try to finish the cure with the horse in better flesh than when I started.

Proper drainage and the horse on the upgrade physically are the two objects that I keep in mind on all these cases. Practically all owners will cooperate with the veterinarian in conditioning a horse by feeding under his directions. This is one great help and probably 50% of the cure.

So look after the teeth, ascarids, bot larvae and if the horse is fat or in good order when I get the case, increase leucocytosis by using hydrochloric acid intrajugularly, several times during the treatment.

I think we are sitting pretty with more horses and more fistulas being raised every year. Selah!

Cheap Dog Food a Delusion

By JOHN W. PATTON,
East Lansing, Michigan

IN THE main, canned dog foods retail at 6c, 8c or 10c per can. The 6c can is purchased because it is cheap. Actually, the food in the 6c can costs nearly twelve times as much per unit of nutritive value as does the food in the 10c can, and six times as much as that in the 8c can.

THE fixed costs that any can of dog food must carry, regardless of its retail price, are shown in Table No. 1. The variable costs that must, of necessity, account for the difference in the retail price are shown in Table No. 2. It is thus shown that the maximum food value, the part used by the purchaser, in the 6c can, can be only one-third of 1c; in the 8c can, it may be six times as much, or 2c; and in the 10c can, an allowance for food is possible of 3 5/6c or approximately twice that of the 8c can and nearly twelve times that of the 6c can.

TABLE NO. 1. FIXED COST OF ANY CAN OF DOG FOOD.

Can (No. 1)	1.726 cents
Freight and handling	0.274
Label	0.125
Carton	0.252
Labeling, packaging, etc.	0.350
Filling, cooking, sterilizing, etc.	0.750
Selling costs	0.250
Transportation (300 miles)	0.510
Overhead	0.600
Manufacturer's profit	0.333
Total	5.17 cents

TABLE NO. 2. COSTS VARYING WITH PRICE OF THE CAN.

	6c Can	8c Can	10c Can
Fixed costs	5.17c	5.17c	5.17c
Retailer's gross profit	0.50c	0.83c	1.00c
Contents	0.33c	2.00c	3.83c
Retail price	6c	8c	10c

THE costs termed "fixed" in the tables are such only in that they are inescapable. There may be a variation in their proportions. Thus, the "freight" on the cans will vary with the distance of the canning plant from the source of supply; "transportation" will vary with the area over which the food is distributed; "overhead" naturally varies from plant to plant, and so may "selling costs," etc. But, on the whole, the costs in the groups as given are approximately minimal—many plants will exceed them; few, if any, have a lower "fixed" cost.

ON A percentage calculation, also, the 6c can of dog food is uneconomical and its purchase wasteful. Thus, the dog gets but 6% of the money his owner spends for a 6c can and 94% of the purchase price is uneaten; he gets 25% of the money expended for an 8c can and only 75% is discarded; he gets approximately 40% of that expended for a 10c can, which compares favorably with the cost of the food in canned fruit or vegetables, bottled milk or other packaged foods.

VERILY, cheap dog food is both a delusion and a snare; a delusion for the owner of the dog and a snare for the dog, and both suffer from it as does also the retailer, whose margin of profit for handling it is inadequate. The manufacturer, alone, profits and he in no greater degree than in putting up a can of good food.

OF COURSE, it does not follow that every can of dog food that retails for 8c, has 2c of food value in it, nor that every can that retails for 10c has approximately 4c of food value in it; but it is possible for it to contain these amounts if manufactured by an honest manufacturer whose cost of selling is not too high, and who puts inside of the can, the maximum food value permitted by the limitations of costs and retail price; but no manufacturer, however good his intentions, can put anything of food value worth considering into the 6c can unless he be a philanthropist or supported by an endowment. To expect something of food value in the 6c can of dog food is to expect something for nothing.

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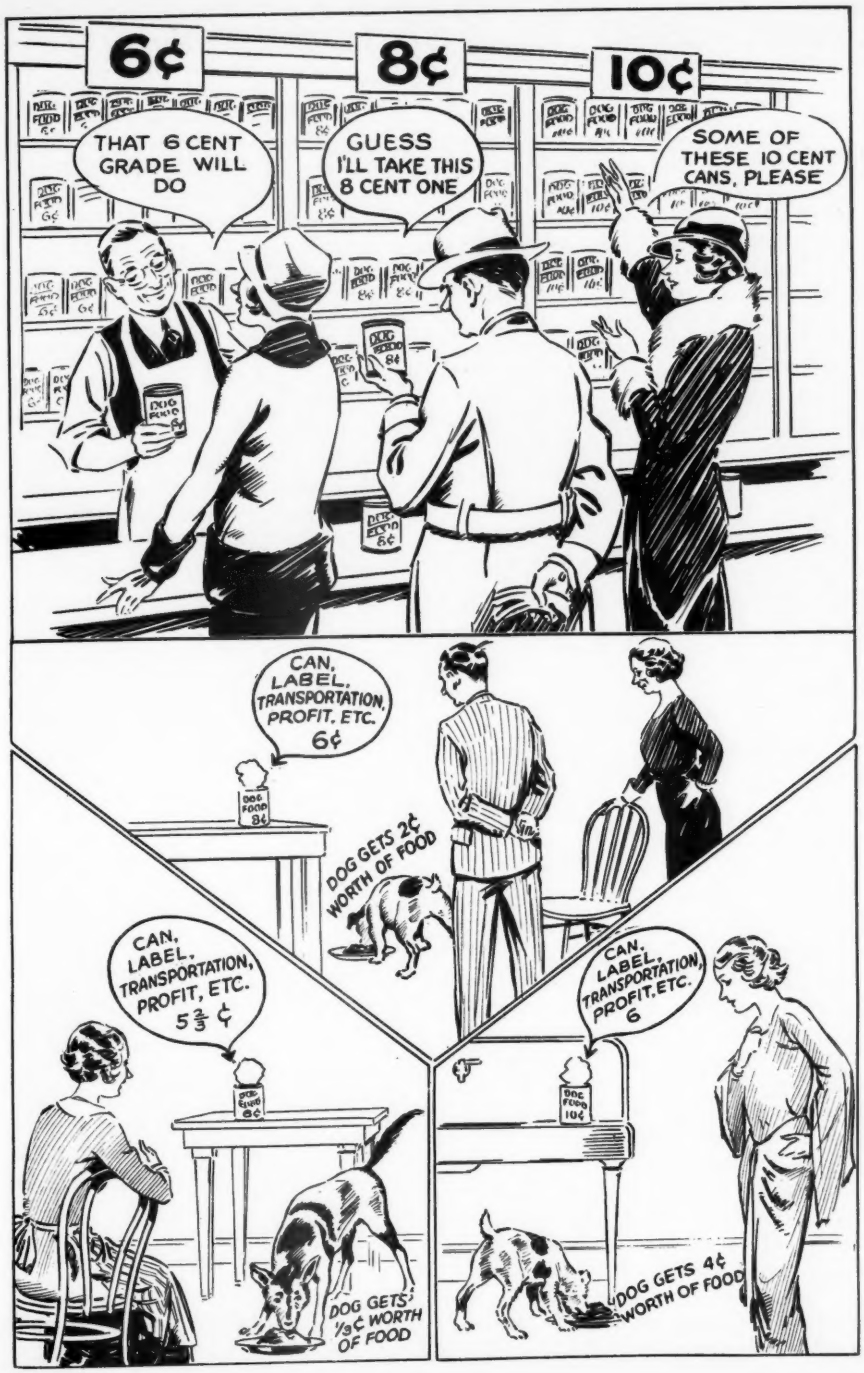

6¢
8¢
10¢
THAT 6 CENT GRADE WILL DO
GUESS I'LL TAKE THIS 8 CENT ONE
SOME OF THESE 10 CENT CANS, PLEASE
CAN, LABEL, TRANSPORTATION, PROFIT, ETC. 6¢
DOG GETS 2¢ WORTH OF FOOD
CAN, LABEL, TRANSPORTATION, PROFIT, ETC. 5⅔¢
DOG GETS 1/9¢ WORTH OF FOOD
CAN, LABEL, TRANSPORTATION, PROFIT, ETC. 6
DOG GETS 4¢ WORTH OF FOOD

Drugs Used In Veterinary Medicine

XII. BELLADONNA—the Source of Atropine

By VICTOR LEWITUS,
Instructor in Materia Medica, College of Pharmacy, Columbia University
Associate Professor in Materia Medica, First Institute of Podiatry

History.—The deadly nightshade plant or *Atropa belladonna* is a drug which was known to both Greek and Roman peoples. It was, perhaps, not as popular as its near-relative henbane which entered into the formula of certain intoxicants, but it can be traced in their literature under the caption of "strychnos" which now comprises the genus Solanum. Its common English name refers to its poisonous properties, and its German name (nachtschatten) points to its use in sorcery in olden times. The term belladonna (beautiful lady) is based upon two versions as to its origin; one derived from its use in the eyes by the women of Venice as a result of which their beauty was enhanced by the mydriasis that followed, and the other said to be due to the beautiful visions which occur when enough is taken to produce hallucinations. The importance of the drug was first emphasized in a French herbal published in 1504, and this was followed by the works of the German botanist Fuchs in 1542 who called it *Solanum somniferum* after some of its toxicological properties had been well determined. Many detailed studies were reported since then, especially about the time of our Declaration of Independence, but it was not until the year 1802 that the French scholar Himly made the first studies concerning its local ophthalmic use. This discovery was made in spite of the fact that the inhabitants of those countries in which it grew knew of its mydriatic qualities. Since that time, the English pharmacist Squire pointed out the usefulness of the tincture in the preparation of liniments intended for the relief of neuralgic pains. To-day the crude drug is used in considerable amounts in the manufacture of its preparations, as well as for its alkaloidal constituents. In this country there are other "nightshades" technically known as *Solanum nigrum* and *dulcamara* (the genuine bittersweet) which must not be confused with the drug under discussion. There are other drugs which are in this solanaceous family closely related in pharmacological characteristics and these include Hyoscyamus (henbane), Stramonium (Jimson weed or thorn apple), Scopola (Japanese belladonna), tobacco, mandragora, duboisia, pituri (the latter two being employed as intoxicants by the Australians) and the potato itself. It may here be noted that the potato plant, either the "greens" (or tops) or green or "sunburned" tubers have contributed to cases of poisoning. Both humans as well as domesticated animals have been victims.

Source.—The official Belladonna consists of either the leaves or roots of *Atropa belladonna,* a tall perennial plant indigenous to central and southern Europe as well as northern Asia Minor, and cultivated in England, Germany and the United States. The leaves are collected when the plant is in flower, that being the season when there is a rich supply of alkaloids. They are carefully dried and are of a pale green color, membranous and brittle. They are from 8 to 20cm. long, and about half as wide, broadly oval in shape and gradually coming to a point at the apex. The margin has no teeth, and the surface of the blade is nearly smooth. The roots of the plant are collected in the autumn, dried and shipped in bags. They consist of nearly cylindrical pieces, at times split longitudinally, and average from 15 to 30cm. in length and from 10 to 20mm. in diameter. Externally, the root is of a light greyish-brown and finely wrinkled longitudinally. Internally the root has a creamy-white appearance. When fractured a light, starch-like dust is given off. The odor is similar to that of licorice root, and the taste is slightly bitter.

Preparations.—The official preparations include the fluid extract, the extract, the

tincture, the ointment and the plaster. All of these are made from the leaves. The root contributes the "fluid extract of belladonna root" as the only preparation besides the liniment. There is an official compound laxative pill of the N.F. which contains the extract from the leaves.

All parts of the plant contain a mixture of alkaloids chief amongst which are hyoscyamine, atropine, atropamine and scopolamine (known also as hyoscine). The younger parts of the plant have mostly hyoscyamine whereas the older parts have more of the other constituents; and the same is true of the fruits. Hyoscyamine is readily converted to atropine, and it was not until recently that it was shown that the chief constituent is the former alkaloid and not the latter; and that the atropine is formed during the extraction process. Because of the difficulty in determining separately the quantity of each alkaloid, the U.S.P. specifications are "not less than 0.3% of alkaloids of belladonna leaves" and "not less than 0.45% of alkaloids of belladonna root." This indicates that the root is 50% more active than the leaves of the plant. The flowers, stalks and other parts contain much less of the alkaloids than the leaves or root and are not recognized.

The active constituent of this drug is represented by the alkaloidal atropine, which is also derived from other crude sources. This is obtained by percolating the crude drug with alcohol and treating the percolate with milk of lime which makes it alkaline. At this stage it is filtered, and the filtrate which contains the free alkaloid in solution, is now acidulated with dilute sulphuric acid and freed of its fat and resins by evaporating the alcohol and treating the residue with acidulated water. This aqueous filtrate is now treated with alkali and the free alkaloid which precipitates out is washed with water. It is then redissolved in alcohol and crystallized out of solution by the addition of small amounts of water.

Properties.—Atropine ($C_{17}H_{23}NO_3$) is a colorless, odorless crystalline substance which has a bitter, acrid taste and is extremely poisonous. It is only slightly soluble in water (1 part in 445), but is readily soluble in alcohol, glycerine, ether and chloroform. It melts at 114-116°C.

Because of its slight solubility in water, atropine is largely replaced by its salt atropine sulphate. This has the formula: $(C_{17}H_{23}NO_3)2.H_2SO_4.H_2O$. It consists of a colorless, odorless powder or granules, easily soluble in water, alcohol and glycerine, and slightly so in chloroform, and almost insoluble in ether. It will not melt below 188°C.

Both of these substances must be kept

Plant and Roots; left (Henbane (Hyoscamus niger), right Deadly Night Shade (Atropa belladonna).

out of contact with air and light as they readily decompose. They have the following chemical incompatibilities: alkalies, tannic acid, silver and gold salts, vegetable infusions or decoctions, borax, bromides, iodides, benzoates, cyanides, oxalic and picric acid. It is physiologically incompatible with: morphine, pilocarpine, muscarine, aconitine and physostigmine.

Action.—Belladonna owes its main activity to the atropine which it contains or contributes. Externally it is used in many preparations for relieving pain and checking the secretion of sweat, an effect produced by paralyzing the sensory nerve endings in the skin. If it is applied in the form of a plaster or solution in glycerin, oil, alcohol or camphor it is readily absorbed from unabraded surfaces and may cause poisoning when so used. When applied topically to the eye it has the same effect as though it had been taken internally, dilating the pupil by paralyzing the nerve end-

ings in the circular muscle fibers of the iris allowing the radial muscles to have free play. The pupil may remain dilated many days. The animal cannot see near objects clearly due to a loss of accommodation.

Internally, atropine or belladonna checks secretion of the mucous membranes of the mouth and checks secretion of the saliva. For this reason the animal to which it is given often suffers from a dry, sore throat. It lessens secretion of the gastro-intestinal tract and also cuts down the peristaltic contractions. For this reason it is often incorporated in preparations which otherwise might produce a griping catharsis. The drug is absorbed rapidly (usually within one half to one hour) and then affects principally the heart, respiration, nervous system, secretory glands, smooth muscle and the pupil of the eye. When atropine or belladonna is given in relatively large dosage, it causes the heart action to be faster and stronger. This is due to a paralysis of the nerve endings in the heart as well as the vagus or inhibitory nerves. As a result of this inhibition, the accelerator nerves have full play and the result is a faster and stronger heart beat. There is a slight increase in blood pressure though in the head and neck the blood vessels become dilated, and there is a flushed condition. perspiration, gastric and intestinal juice and biliary secretion will be at a minimum. Involuntary muscles will be depressed due to the paralysis of the nerve endings which carry impulses to them, so that the peristaltic functions, the contraction of the bladder and uterus, and the bronchial muscles are all reduced in activity. Large doses of the drug may cause a rise in temperature. The effect on the mammary glands, pancreas and kidney is not so marked partly because these organs function somewhat differently than the other secretory glands, being less dependent on peripheral impulses. Atropine is chiefly excreted by way of the urine, and this occurs in ten to thirty-six hours after ingestion. Part of the alkaloid is destroyed by oxidation in the body, the remainder being eliminated unchanged.

Therapeutics.—Belladonna and its alkaloidal atropine is used externally in the form of ointment, plaster or liniment to allay surface irritation or pain in such conditions as rheumatism, arthritis, and inflammation of the lymph glands. It is applied topically in the eye both for its mydriatic and analgesic effect in order to facilitate examinations, to destroy adhesions to the lens, to rest the ciliary muscle and to allay irritation and pain. It is usually used for the latter purpose in 1% strength. For

DOSE TABLE

	Atropine Sulphate	*Belladonna Powd. Leaf*	*Belladonna Extract*	*Belladonna Tincture*	*Belladonna Rt. Fluid Extract*
H—	gr.ss-iss (.03-.1)	3ii-3i (8.-30.)	gr.x-xx (.6-1.3)	3ss-i (15.-30.)	3 i-ii (4.-8.)
C—	gr.1-iss (.06-.1)	3iv-3i (15.-30.)	gr.xv-xx (1.-1.3)	3ss-i (15.-30.)	3 i-ii (4.-8.)
S—	gr.1/15-1/12 (.004-.005)	gr.x-xx (.6-1.3)	gr.ii-iv (.13-.25)	3i-ii (4.-8.)	m x-xv (.6-1.)
D—	gr.1/100-1/20 (.0006-.003)	gr.ii-v (.13-.3)	gr.1/8-½ (.008-.03)	mxv-xxx (1.-2.)	m i-iii (.06-.2)

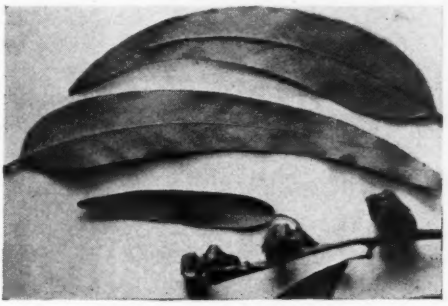
The drug causes faster and deeper breathing due to increased impulses from the respiratory center in the medulla. With small dosage, the brain is unaffected but when large amounts are given there is a condition of delirium later followed by depression from such overactivity. The secretions of all secretory glands are lessened or entirely stopped. Thus the mucous, saliva, simple mydriatic effects, another drug called homatropine (a synthetic derivative) is being employed since the dilatory effect is not so persistent. It is also used externally to check perspiration when this becomes excessive, and for its inhibitory effect on the production of milk when the udder is inflamed, but the latter action is not marked.

Internally it is widely used for its effects on smooth muscle. It therefore is indicated in such conditions as spasm of the intestine, and thus relieves colic and the griping that follows the use of harsh cathartics. However, it must be remembered that the drug also dries up the secretions in the digestive tract and this is, at times, a distinct disadvantage. Furthermore it may check peristalsis completely and thus stop defecation. It also soothes the involuntary muscles in the ureters, urethra, etc., and thus is recommended for cystitis, urethritis or when calculi are present in the ureters. In asthma and coughs it is very serviceable since it relieves the bronchial spasms and reduces the sensitivity of the mucous membranes at the same time stimulating the respiratory center in the medulla. In the case of heaves, it gives temporary relief only, though the effects may be immediate and long lasting. It is also useful in cases of bronchitis, pneumonia and other acute diseases due to its effects on the splanchnic circulation which it stimulates markedly. In case of pulmonary edema, hypodermic doses of atropine have proved invaluable. It has also given good results in cases of tachycardia and other palpitations of the heart.

It is the drug to use in emergencies due to poisoning by heart and respiratory depressants, when the respiration is threatened in case of pneumonia, collapse due to narcotics or general depressed states, as occurs with general anesthesia. It is often given preliminary to the administration of anesthetics to check excessive salivation and mucous secretion in the respiratory tract, and to stimulate the respiratory centers. In the case of chloroform anesthesia, it checks the exaggerated vagus action which occurs in the first stages. It has been shown recently to prevent anaphylactic shock or relieve these symptoms once the antitoxin is injected.

Toxicology.—The sensitivity of animals to this group of drugs varies considerably, but the herbivora are by far the most tolerant. Horses and cattle can both withstand large doses the latter being less sensitive, and goats have been even more resistant to the effects. Rabbits are known to withstand enormous doses, and guinea pigs likewise.

The symptoms of poisoning consist of a dryness in the mouth and throat, difficult swallowing, very rapid pulse and breathing, usually increased temperature, widely dilated pupils, restlessness or nervousness, muscular irritability or twitching and delirium. Later the respiration becomes irregular and shallow, the pulse becomes thready, the temperature drops, there is incoordination, and there ensue convulsions followed by coma and a fatal end. It should be noted that in lethal doses, belladonna depresses the center of respiration and death is usually due to this effect, though the heart may be involved.



Leaves of the Eucalyptus Globulus
(See V. M. for September, 1935, page 405)

The treatment consists of giving emetics, washing out the stomach with tannic acid to precipitate the alkaloids, applying cold compresses or ice bags to the head in case of delirium, and giving stimulants such as caffeine, strychnine, etc., to ward off respiratory failure and collapse. To avoid reabsorption of the atropine from the urine, catheterization is an added necessity in these cases. The use of pilocarpine, physostigmine (or eserine) or arecoline is contraindicated since even though these are for the most part antagonistic to atropine they depress the respiration. Morphine should by all means be avoided in cases of atropine or belladonna poisoning for a similar reason.

Abstracts

THE DIAGNOSIS OF BANG'S DISEASE

The precipitation reaction, especially Meinicke's clarification reaction, is a very appropriate auxiliary method for the diagnosis of infectious abortion in cattle[20] (and of glanders in horses). The technique is simple. The test calls for the serum to be tested, the bacterial abortus antigen, an original extract, and a 1% saline solution. A test tube is filled with bacterial abortus antigen, and another with a 1% saline solution and then incubated for 15 minutes. Both tubes are now carefully mixed and incubated for an additional two to three hours. Then, 1cc of this mixture is added to 0.2cc of fresh, not inactivated, serum and incubated for another two to three hours. All these reagents may be stored for a long time.

PRECAUTIONARY MEASURES FOR ANESTHESIA

Arrangements for general narcosis[21] include preparations for the immediate access to various stimulants in case of accidents, because complications may arise from several different sources, such as the heart, the peripheral vessels, the respiratory system, and the nervous centers; each one of which demands individual treatment. Previous to narcosis, the patient must be given a thorough examination. Atropin given subcutaneously one hour before the beginning of the anesthesia will check salivation and prevent aspiration.

Other important measures to be taken are those to prevent acidosis during narcosis. Alkalosis of the blood will improve the narcosis. It will lessen the required dose of certain narcotics and at the same time intensify the narcotic action of the drug; it will also prevent post-narcotic complications. If a disturbance of the central nervous system exists, morphine should be replaced by other drugs. To avoid vomiting, the stomach and the small intestines must be kept empty. Disregard of this rule when applying anesthesia is considered malpractice.

Toxic collapse is often caused simply by the toxic action of the general or the local narcosis.

ANTI-RABIES VACCINE USEFUL IN EPILEPSY

A 48-year-old man, suffering from a severe form of epilepsy[22] (with epileptic seizures twice daily), was bitten by a dog suspected of having rabies. On the day the dog bit him, he received the first ampule of anti-rabies vaccine. Additional ampules were given during the succeeding days. Later, the treatment was changed to the more powerful anti-rabic brain vaccine, type A. The epileptic seizures ceased entirely following the first antirabic vaccine treatment. The therapeutic success is ascribed to the action of the endotoxines of the fixed virus. The treatment of epilepsy with killed antirabic vaccine promises to be effective in cases which are not caused either by extra-uterine traumata or by tuberculosis.

A TEST FOR ROARING

A five-year-old stallion[23] was observed to make loud inspiratory sounds while eating oats, chaff, oats and chaff, hay and bran. When eating green feed, no inspiratory sounds were produced. During the customary examination of the stallion at work, no inspiratory sounds could be heard. Additional examination revealed the existence of a beginning recurrens paralysis.

[20] Golowanova, A. J., 1935. Die praktische Verwendung der Fällungsreaktion nach Meinicke bei infektiösem Abortus der Rinder und Rotz der Pferde; (The Practical Application of Meinicke's Precipitation Reaction for the Diagnosis of Infectious Abortion in Cattle and Glanders in Horses). *Tierarztl. Rundsch.*, 41:47, pp. 759-61.

[21] Heger, 1935. Vorbersitung der Allgemeinbetäubung; (Preparation for General Narcosis). *Tierarztl. Rundsch.*, 41:46, pp. 743-45.

[22] Nicolic, M., 1935. Behandlung der Epilepsie mit antirabischen Vakzinen; (Treatment of Epilepsy with Anti-Rabies Vaccine). *Münch. Med. Wchuschr.*, 82:37, pp. 1493-94.

[23] Nörr, J., 1935. Über das sogenannte Futterrohren des Pferdes; (Roaring in Horses Observed During Feeding). *Tierärztl. Rundsch.*, 41-45, pp. 721-24.

The author concludes that when a horse is examined for roaring and the test proves negative or doubtful, under conditions of forced work, it becomes necessary also to watch the horse carefully during the time of feeding.

INTRAVENOUS MEDICATION

In a survey[24] of the present status of intravenous medication, the indications of blood serum therapy, of saline infusion, and especially of the calcium therapy, are discussed. The latter treatment gave excellent results in milk fever of cows and sheep, eclampsia of bitches, grass tetany and in toxic disturbances caused by too concentrated feeding, and morbus maculosus.

Intravenous sugar therapy is still in its infancy; acetonemia of cattle can be cured by intravenous injection of sugar solution containing some calcium chloride. Splendid results with intravenous injection of dextrose solution were obtained also in four cases of hemoglobinuria in horses.

THE BLOOD PICTURE IN GENITAL DISEASE

The blood examination[25] of 22 cattle suffering from genital diseases, of which 21 cases were observed during puerperium, yielded the following results:

The number of crythrocytes remained practically within normal limits, even in the most severe puerperal diseases. In two-thirds of the cases the hemoglobin content was slightly decreased. The leucocytic blood picture, however, shows definite changes. A nuclear shift to the left could be demonstrated in all cases. In most cases an increase in the number of leucocytes could be noted. As a rule, the number of leucocytes rose to hyperleucocytosis, almost parallel with the development of the shift to the left. Eosinopenia predominated. In most severe cases of puerperal diseases, aneosinophilia was exhibited. The gravity of the disease could be prognosed from the blood picture. Diagnosis on the basis of the blood examination alone is not always possible, and it is not necessary. The importance of the hemogram in cattle lies in its use for prognosis.

SAPONIN-BOUILLON CULTURE MEDIUM

Saponin-bouillon, a solution of 10gm saponin in a 1% pepton-bouillon, having a pH 7.2, has given excellent results in the culture of blood for the demonstration of pathogenic organisms.[26] The addition of saponin to the bouillon prevents coagulation and seems to stimulate the growth of bacteria. Twenty-four to forty-eight hours after inoculation the culture is transferred to blood agar.

TURPENTINE THERAPEUTICS

Treatment of various types of colic with oil of turpentine (70-90cc), aided by sodium sulphate (250-350gm), and in cases where much pain is exhibited, with sulphuric ether (50-60cc), has given satisfactory results.[31] Complete recovery was also obtained in two cases of joint lameness when 8cc of oil of turpentine was injected subcutaneously. The treatment of cysts of the fetlock consists in tapping the cyst with a canula and injecting a 10% alcoholic solution of antipyrin and tannic acid, and of subcutaneous injections of 2cc of oil of turpentine into the surrounding tissues. The horse is able to work within eight days. After two months, the cyst will have disappeared entirely.

[24] Bugge-Naess, R., 1935. Die intravenöse Therapie in der tierärztlichen Praxis; (The Intravenous Medication in Veterinary Practice). *Munch. Tierarztl. Wchnschr.*, 86: 38, pp. 445-51.

[25] Krause, K., 1934. Das Bluthbild der Rinder bei puerperalen Erkrankungen; (The Blood Picture of Cattle Suffering From Puerperal Diseases). Thesis: Leipzig.

[26] Sgalitzer, G., 1935. Beitrag zum Nachweis pathogener Keime im strömenden Blut; (The Problem of Demonstrating Pathogenic Germs in the Blood). *Zentralbl. f. Bakt. I. O.*, 5:6, pp. 393-98.

[31] Neumann, 1935. Erfahrungen bei der Behandlung mit Terpentinöl bei Kolik, chronischen Gelenkslahmheiten, und Sprungsgelenkgallen; (Experiences with Turpentine in the Treatment of Colic, Chronic Arthritis and Distended Bursae of the Fetlock). *Zeitschr. Vetk.*; 47:7, pp. 242-51.

"Springburn Lovely Pet," Senneville, Quebec, has completed eleven consecutive records and now ranks as the highest butter fat producing Ayrshire in the world. She has produced 156,215 pounds of milk containing 6,542 pounds of fat in eleven lactation periods, totalling 3,644 days, or more than 17 quarts for each milking day.

FARM INCOME CONTINUES TO GAIN

Farmers sold $636,000,000 worth of products in September, compared with $547,000,000 in August, and with $623,000,000 in September, 1934. They received in addition AAA benefit payments totaling $56,000,000 in September, compared with $45,000,000 in August, and $76,000,000 in September a year ago.

The Bureau of Agricultural Economics, which reports these figures, says that the total income from farm marketings in 1935 probably amounted to about $6,200,000,000 compared with $5,831,000,000 in 1934. Rental and benefit payments in addition were about $600,000,000 last year compared with $556,000,000 in 1934. Total cash farm income from marketings and from rental and benefit payments, on the basis of these figures, would be about $6,800,000,000 in 1935 compared with $6,387,000,000, in 1934.

AMERICAN CLINICIAN IN IRELAND

Dr. J. N. Frost of the New York State Veterinary College demonstrated the roaring operation at the Clinic held in connection with the anual meeting of the National Veterinary Medical Association of Great Britain and Ireland at Belfast, July 29 to August 2, 1935. Of the matter, *The Veterinary Record,* in its report of the meeting, said:

"An unexpected, but nevertheless very welcome visitor to the Congress this year was Professor Dr. Frost, who happened to be staying in Edinburgh the week before. His skill as an operator was well known as a result of his numerous publications and from reports by visitors to Ithaca last year after the International Veterinary Congress.

"When it was decided, at the last moment, to have the roaring operation performed as one of the features of the Operation Day, the choice of operator was undecided. Fortunately, a telephone message from Belfast to Edinburgh late on Sunday night led to the decision to invite Dr. Frost to fill the gap.

"It was not until Dr. Frost was *en route* for Belfast on the Monday morning that he first heard of the provisional arrangement. We owe him our sincere thanks for acceding to our request.

The fact that he had to operate with a scratch lot of instruments which he had never seen until the day of the operation and carried it through in a perfect manner, together with the cool and masterly handling of his animal, left no doubt in anybody's mind that we were witnessing the work of an expert surgeon."

FOOD AND DRUG FAKERS PUNISHED BY HIGH FINES

Fines of more than $1,000 imposed by Federal Courts in two widely-separated jurisdictions were highlights of the October record of prosecutions as summarized by the Food and Drug Administration.

One of the big fines was the $1,200 penalty assessed against Joseph W. Spiker and Frank W. Kimball, who called themselves the Melatol Laboratories, Inc., Oakland, Calif. These men promoted "Melatol," which was nothing but crude oil, as a cure for diabetes. The medicine, selling at $5 for a box of 112 capsules, was "discovered" by Spiker, who, prior to 1930, sold it in Salt Lake City under the name "Paramount Oil."

In Brooklyn the Moosalina Products Corporation (Hochheiser and Weisberg) was fined $1,350. According to the allegations, this firm had shipped nine lots of salad oil composed of varying percentages of cottonseed oil and olive oil, the latter in no instance amounting to more than 15%. The oil was artificially colored and the labels were so designed as to create the impression that the goods consisted of high grade imported olive oil.

Two other shippers of salad oils were also fined. One, H. J. Staiti, Inc., New York, had shipped a mixture similar to the Moosalina article and similarly misbranded, and which was in addition short volume.

The once extensive illicit trade in adulterated and misbranded oils is practically at a standstill as a result of activities of federal agents, operating against interstate shipments under authority of the Food and Drugs Act.

The Chicago Pharmacal Co., Chicago, Illinois, was fined $50 on October 22, for shipments of certain substandard drugs.

Cases against eleven other medicine manufacturers, based on false and fraudulent remedial claims, were also terminated recently. The firms and products involved, the claims alleged in violation of the law, and the penalty in each case, are as follows:

American Desert Tea Co., Los Angeles, Calif., fine $250. Progress Wholesale Drug Co., Dallas, Texas, 13 antiquated medicinals obtained through foreclosure, bankruptcy, auction, or other salvage operations, fine $400; Home Drug Co., Minneapolis, Minn., "Prescription No. 69", fine $100; John B. Petrie, trading as BX Laboratories and

Purity Products Co., Chicago, Ill., "Menstrua" and "Hygeen Tablets" for women's disorders, fine $50; The Holford Co., Minneapolis, Minn., "Holford's Famous Inhaler", fine $40; Frank Granzow, trading as Dr. Hildebrand's Laboratories, Chicago, Ill., "Granzow's Tonic Tablets" fine $40; Nature's Mineral Food Co., (Perry, Anna and Thornton Smith), Indianapolis, Ind., "Nature's Mineral Food", fine $25. John Novak Co., Chicago, Ill., "Novak's Female Drops" and "Komet", fine $25; The Pier Co., (C. H. Williams), New York, N. Y., "Nu-Vigor Tablets" fine $25; Lambert's Remedies, Inc., Minneapolis, Minn., "Lambert's Powders" $10; Temple Salatorium Co. (Wm. C. Yergin), Butler, Ind., "Bio Prepared Salt", $1.

In Brooklyn, Isadore Fein pleaded guilty to having made shipments of filthy cream. Fein, who is already serving a sentence on Welfare Island for similar offenses against the City of New York, was placed on probation for three years, the Court stating that if Fein violates his probation, he will be given the maximum sentence permitted by law. Filth in butter brought a $40 fine to Pella Creamery, Pella, Iowa, which had shipped the unfit butter to Chicago in violation of Federal law.

The following additional terminations are reported for the last two-month period: For shipments of butter deficient in butterfat, Swift & Co., Seattle, Wash., fine $900; Swift & Co., Tacoma, Wash., $100; John Morrell & Co., Sioux Falls, So. Dak., $50; Gordon Cooperative Creamery Co., Gordon, Nebr., $25; Alliance Creamery Co., Alliance, Nebr., $25; Exeland Cooperative Creamery Assn., Exeland, Wisc., $5; and Lisbon Cooperative Creamery Co., Lisbon, Iowa, $50.

For shipments of canned frozen eggs found to be decomposed, Litchfield Produce Co., Litchfield, Minn., $10; Werner Poultry Co., Minneapolis, Minn., $25; and Selby Poultry Co., Webster City, Iowa, $50.

For shipments of apples bearing poisonous residues, Sterling H. Nelson Co., Salt Lake City, Utah, $25; George W. Haxton & Son, Oakfield, N. Y., $50; A. J. Todkill, Barker, N. Y., $50; and E. O. Muir & Co., Salt Lake City, Utah, $25.

For shipments of canned foods found to be below the legal standard but bearing no label notification to that effect, G. H. Wetterau & Sons Grocery Co., St. Louis, Mo., (peaches), $103; Onekama Packing Co., Onekama, Mich., (cherries) $50; National Fruit Canning Co., Seattle, Wash., (cherries) $300; and Western Oregon Packing Corp., Corvallis, Ore., (cherries) $50. The goods in the last instance were also wormy.

For shipments of short-weight foods, Santa Cruz Fruit Packing Co., Oakland, Calif., canned spinach, $60; Goodwin Preserving Co., Louisville, Ky., preserves, $200; and Commercial Importing Co., Inc., Seattle, Wash., baking powder, fine of $50 suspended and defendant placed on five years' probation.

For a shipment of potatoes below the grade claimed, Leonard, Crosset and Riley, Inc., $50, and Felix J. Lukasavitz, $1.

For shipments of dried fruits found to be insect-infested or otherwise filthy, California Packing Corp., San Francisco, Calif., prunes and dried pears, total fines $400; California Prune and Apricot Growers Assn., San Jose, Calif., dried apples, $475; Albert Asher Co., San Francisco, Calif., dried grapes and dried peaches, total fines $350; Guggenhime & Co., San Francisco, Calif., dried peaches, $50; Consolidated Packing Co., San Francisco, Calif., dried peaches, $50; Rosenberg Brothers & Co., San Francisco, Calif., dried apples, peaches, apricots and figs, total fines $550.

For shipments of tomato puree, catsup, and pulp containing mold, insect particles or other evidences of filth, Marysville Packing Co., Marysville, Ind., Henryville Canning Co., Henryville, Ind., Lapel Canning Co., Lapel, Ind., Cicero Canning Co., Cicero, Ind., Summitville Canning Co., Summitville, Ind., and Everitt Packing Co., Underwood, Ind., fines of $25 against each; and Niagara County Preserving Corp., Wilson, N. Y., and Barker Canning Corp., Barker, N. Y., $100 against each.

For stock feeds containing less protein than claimed on the labels, Missouri Cotton Oil Co., Cairo, Ill., $150; Osceola Cotton Oil Co., Osceola, Ark., $25; East St. Louis Cotton Oil Co., trading as Forrest City Cotton Oil Mill, Forrest City, Ark., $25, and the same firm trading as Pine Bluff Cotton Oil Mill, Pine Bluff, Ark., $25.

For the fiscal year ending June 30, 1935, there was a definite increase in the number of seizures and prosecutions. In the course of the year there were 2,011 seizures and 1,029 prosecutions, each of these figures running slightly ahead of the 1934 record. More than 60,000 samples were collected and examined, not by indiscriminate sampling, but as the result of carefully planned procedure which is applied in all inspection districts. Examinations of imported foods and drugs took about one-sixth of the time of the food and drug workers. At the same time and without relaxing activity in policing the food and drug channels, a program was initiated for training the additional personnel authorized by an increased appropriation for the enforcement of the Food and Drugs Act.

Two New Divisions

Two important divisions were created within the Administration in response to developments in the food and drug field. A unit was set up for assay of vitamin claims in food products and for research in vitamin testing and standardization. A new pharmacological unit will handle food and drug work connected with biological products, glandular preparations, new synthetic chemicals and drugs, and will investigate a range of problems connected with insecticide residues on food products.

LIVESTOCK RECEIVING MORE HUMANE TREATMENT

More humane treatment of livestock through improved shipping methods, control of animal diseases and parasites, and better methods of handling stock, were reported by Dr. John R. Mohler, Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, in a talk at the fifty-ninth annual convention of the American Humane Association at Washigton, D. C.

Unloading of livestock from railroad cars for feed, water, and rest every 28 hours, which is required by law, has been responsible for great improvement in the care of animals shipped to markets. When animals are shipped in especially equipped railroad cars and are fed and watered, unloading en route is not required. Charges of violating this law in recent years have seldom exceeded 150 a year, whereas in 1921 they numbered 2,165.

The Bureau of Animal Industry has conducted supplementary educational work on points not covered by the shipping law. Exposure of livestock shipments to severe winter weather has been lessened by getting shippers to line the lower parts of railroad cars with tar paper. Some railroads have been induced to install spraying devices for keeping animals, particularly hogs, cool in the summer. Federal inspectors are at hand to see that the animals receive proper care when they arrive at the markets.

The Bureau in cooperation with the States has been able to reduce much animal suffering by control of diseases and parasites. The United States is kept free of the devastating foot and mouth disease, which causes much suffering and heavy cattle losses. When an outbreak occurs the Bureau applies drastic measures to stamp out every trace of infection. Through research, scientists of the Bureau determined the life cycle of the cattle tick and with this knowledge developed a successful method of eradication. Campaigns against other livestock diseases and parasites are being conducted effectively.

"The custom of roping and throwing cattle is rapidly giving way to a more general use of corrals and sorting gates and pens. The practice of dehorning cattle by crude methods has been largely replaced by more humane methods. The modern practice of feeding large numbers of animals from racks or bunks in the field or on the range gives weak animals a good chance to feed along with the stronger ones.

"Effective means of dealing with the sheep-killing dog problem include specially built fences, elimination of ownerless dogs, and enactment of legislation similar to that of the Michigan dog law.

"We also caution farmers not to ship hogs and sheep in the same cars or trucks. When confined together, hogs often attack and mangle the sheep. Our inspectors stationed at the stockyards are constantly on the watch for protruding nails in livestock chutes, for missing cleats that permit animals to fall or slip, and for other things which may cause injury."

The more valuable an animal is, Doctor Mohler said, the more completely the owner provides for its welfare. In view of this fact he appealed to his listeners to encourage the work of the breed associations in their efforts to improve animal types. "By developing a greater incentive for considerate treatment of animals," he concluded, "you may achieve results not attainable by punitive means."

SCREW-WORM LOSSES IN 1935

The worst screw worm outbreaks last year were in Florida. Apparently the insect, which usually cannot stand very low temperatures, did not become wholly inactive in Florida last winter, in spite of two cold waves. The flies that lay the screw worm eggs appeared early this spring in many places. Comparatively few animals have died from screw worm attack, however, because stockmen followed the better practices outlined by the U. S. Department of Agriculture and discovered and treated infested animals more promptly than heretofore.

Nearly half of the 133,521 screw worm cases reported from the Southeast this year were the direct result of farm practices, including dehorning, castrating, breeding, branding, and marking at the wrong time of year. Such cases are avoidable. Confining these operations to fly-free seasons, late fall or winter, usually prevents the wounds from becoming infested. The cases caused by tick bites—about 30 per cent of the total—cannot be entirely avoided, but they can be lessened by frequent examination of stock and by the application of a mixture of pine tar oil (1 part) and cottonseed oil (2 parts) inside the animal's ear.

Cattle suffered most from screw worm attack in the Southeast last year, with hogs a close second, records show.—*U. S. Department of Agriculture.*

SEE YOUR VETERINARIAN FIRST

Various firms have used the slogans, "See Your Doctor First," "See Your Dentist Twice a Year," and "See Your Druggist First."

In a campaign, about to be launched, the Abbott Laboratories will feature the slogan, "See Your Veterinarian First." Signs and displays bearing this slogan will be placed in Prescription Drug Stores where the owners of dogs and other small animals may see them.

This campaign will start with the announcement of a new dietary supplement for small animals, known as "Vita-King".

ANIMAL HOSPITAL MEETING

The third annual meeting of the American Animal Hospital Association will be held at Hotel Jefferson, St. Louis, Missouri, April 14 and 15, 1936. An outstanding program of real interest to all who are interested in the care and hospitalization of small animals has been arranged. All of the speakers and demonstrations for this meeting have been selected with the thought in mind of answering vital questions, concerned in the successful operation and conduct of a small animal hospital, regardless of its size or the number of animals hospitalized. All veterinarians are most cordially invited to attend. The entertainment will include a dinner in the club Continentale, and on the following day a visit to local animal hospitals, including the one at the famous Zoological Gardens. The complete program of this meeting may be obtained by addressing the secretary, Dr. D. A. Eastman, 901 Nineteenth Street, Moline, Ill.

KARL BURCHARD HANSON

Dr. Karl B. Hanson died of pneumonia at the age of 40, in the Milwaukee General Hospital, Milwaukee, Wisconsin, January 14, 1936. Doctor Hanson was a graduate of the University of Wisconsin (1912) and of the Division of Veterinary Medicine, Michigan State College in 1919. He was best known for his services in the Bureau of Biological Survey of the U. S. Department of Agriculture, in which he was employed for 16 years. He contributed much to literature on the diseases and breeding of foxes and other fur bearing animals. On January 5, 1935, he joined the staff of Fromm Brothers as ranch veterinarian in charge of research on their experimental fur farm at Grafton, Wisconsin. He is survived by his widow, his parents, two sisters and two brothers.

DIED WHILE ON A CALL

Carl W. Fisher was born in Cabot, Vermont, on February 23, 1871. He was graduated from the Ontario Veterinary College in 1898 and from the New York State Veterinary College at Cornell University, Ithaca, New York, in 1901. In July of that year he began practice at San Mateo, California. He died suddenly on November 26, 1935, while engaged in treating an animal.

During the years of his practice, Doctor Fisher became noted for his gentleness in the handling of animals and achieved success not only in the treatment of diseases but particularly in disease prevention. His success in developing and maintaining herds free from infectious diseases has long been recognized. The efficiency and sincerity of his work is held in high esteem by many residents of San Mateo County and by his veterinary colleagues throughout California.

Doctor Fisher was a member of the Masons, the California State Veterinary Medical Association and the American Veterinary Medical Association. He is survived by his widow.—C. M. H.

Dr. A. Lungwitz, former director of the farriery school at Dresden, author of textbooks on horseshoeing and on the foot of the horse and editor of the oldest professional journal on horseshoeing, celebrated his 90th birthday anniversary October 31, 1935. Doctor Lungwitz lives in retirement now, in Kleinzschachwitz, Saxony.

Dr. Herbert S. Wooters, Champaign, Illinois, died October 16, 1935, in a hospital in St. Louis, as a result of a malignant tumor of the lung. Doctor Wooters was a graduate of the Chicago Veterinary College, class of '13, and had operated a small animal hospital in Champaign for the past twelve years. He was a 32nd degree Mason, a member of the Elks, the American Legion, the A. V. M. A., the Illinois V. M. A. and was a captain in the Veterinary Reserve Corps. He is survived by his widow, Mrs. Linna Potee Wooters, his mother, one brother and two sisters.

FREDERICK JOSEPH BURKEY

Frederick Joseph Burkey, M. D., was born in Jonesboro, Illinois, in 1859. He died October 14, 1935, at his hospital and residence, 2507 Bissonett Avenue, Houston, Texas. He had been in ill health for some time. Doctor Burkey was among the oldest veterinarians practicing in Texas. Much of his childhood and youth were spent in Europe. He studied at the Ontario Veterinary College and was graduated from the Chicago Veterinary College in 1890, and from the Medical Department of the University of Texas in 1904. He located for practice first in Galveston and after fourteen years, moved to Houston where he had practiced ever since.

Burial services were conducted by Gray Lodge No. 329, A. F. and A. M., of which he was past master; past high priest of the Washington Chapter of Royal Arch Masons; past commander of Ruthven Commandery, Knights Templar; past master of the Houston Chapter Knights of Rose Croix, Scottish Rite Bodies, and also Commander of the Court of Honor. He was a member of the Arabia Temple Shrine and a charter member of the Houston Veterinary Association.

He was a splendid man, a keen student, loved by all who knew him. His philanthropies were legion. He was of the active workers and organizers in the erection of the County School for Girls, and many similar types of charity. Every veterinary hospital in Houston was closed for two hours during his funeral services as an honor to this splendid member of the profession. He is survived by two daughters, a son and three grandchildren.

—*J. G. H.*

It's Mutiny!

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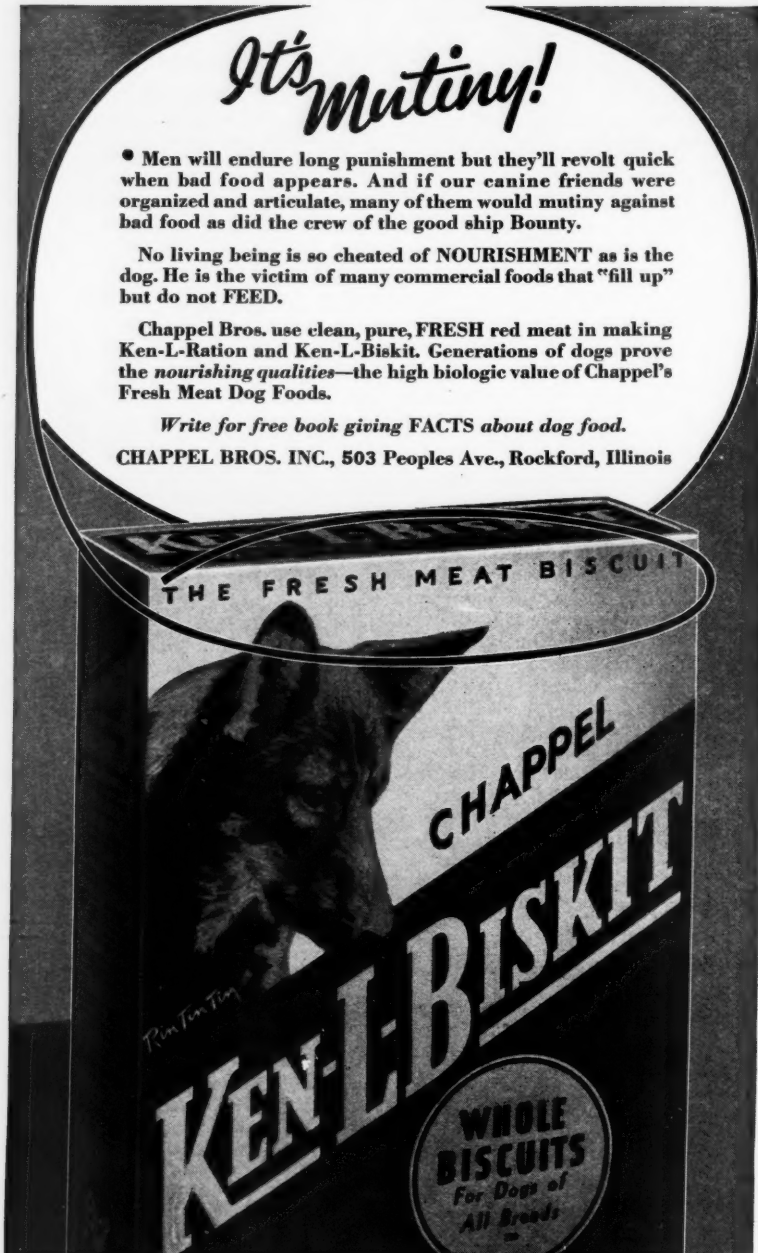
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